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ADJUSTMENT OF PRODUCTION IN AGRICULTURE[1]

VICTOR CHRISTGAU, CONGRESSMAN FROM MINNESOTA

During the past ten years, the problems of agriculture have been uppermost in the minds of the American people. Since the beginning of the agricultural depression numerous measures have been proposed to improve the economic condition of the American farmer. Some have been adopted, but conditions have not been improved and the problem is still before us. In 1928 the national campaign was largely fought out on farm relief proposals. The nation was made ready for national legislation in behalf of agriculture, and Congress was called into special session by President Hoover in April, 1929. The agricultural marketing act was adopted and we have now operated something over a year under that act.

Just before Congress adjourned for the holidays a $150,000,000 appropriation to the Farm Board was passed, making a total of $400,000,000 that Congress has appropriated out of the $500,000,000 authorized when the Agricultural Marketing Act became a law. A great deal of opposition developed to this additional appropriation. It is my opinion that had not the $500,000,000 been authorized at a time when the nation was willing and ready to do everything possible for agriculture, it is possible that a hostile element in Congress would not have permitted additional money to be appropriated for the use of the Board. Since the passage of the act, some of those who were skeptical as to its possible benefit, are now saying "I told you so" as the farm income for 1930 reaches the lowest point since 1921. The position of agriculture in the public eye is somewhat overshadowed by other acute problems brought on by the world-wide depression. The intense partisanship that developed at the

[1] Paper read at the twenty-first annual meeting of the American Farm Economic Association at Cleveland, Ohio, December 29, 1930.

time that Congress had under consideration the drought relief bill is something of an indication to me that agriculture is again facing much the same opposition to its legislative proposals that it did in the early years of its efforts.

Among difficulties that agriculture had to overcome in securing legislative action during the past ten years is a feeling on the part of a good many people prominent in public life that legislation could in no way assist the farmer. After the government has made available a half billion dollars and has given the Farm Board very broad powers to be used in placing agriculture on an equality with other industries, the opposition to additional legislation will lend force to its arguments by pointing to the present financial difficulties of the American Farmer.

If we look at the situation thus far in a fair and impartial manner, we must come to the conclusion that we have not operated long enough under the Agricultural Marketing Act to determine the effectiveness of that legislation. We have, however, had sufficient experiences during the past year to arrive at some very definite conclusions as to action that might well be taken in the future.

Another argument constantly brought up, as legislation was considered during the past ten years, was that any action taken to improve the prices to the farmers would result in substantial increase in production and thus defeat the very purpose of the program that was adopted. When the McNary-Haugen bill was up for consideration, it contained a provision intended to prevent increased production. Likewise, when the debenture was acted upon by the senate, it contained a provision which the sponsors held would prevent any increase in production if prices were increased by its application.

Since the passage of the Agricultural Marketing Act, it has become apparent to most students of the problem that no matter how efficient the marketing system may be, its benefits might be completely nullified, as far as the producers are concerned, by an over-production of the commodity. During the past year the various members of the Federal Farm Board have laid great emphasis on the necessity of controlling or curtailing production. The continued mounting of surpluses in wheat and cotton, and a certain degree of shifting from the over-produced staple crops to dairy, poultry, and other farm commodities, the prices of which have been somewhat more advantageous than the staple crops, has brought the problem of better adjustment of farm pro-

duction to the forefront. Thus far, however, we have not adopted a plan of curtailing production or adjusting production which is acceptable to the farmers and which can be put into operation with any degree of effectiveness.

Shortly before Congress adjourned for the holidays, I attended a hearing held by the Judiciary Committee on a measure providing for a national industrial commission. The stated purpose of this plan is to bring about a better coordination of the various industries of the country—a sort of national planning board, if you please. Its purpose, according to the author, would be to make it possible to assemble facts regarding the conditions and situations in the various industries so that the total production of the country might be better adjusted to the needs of this nation and to the opportunities for markets abroad. This indicates that thought on the matter of a more scientific adjustment of production has culminated in definite proposals. Other industries of the country have gone much further than has agriculture in adjusting their activities to the markets of this country and to the markets of the world. If it were possible for the agricultural industry to control its production as, for example, the automobile industry has done during the past year, the problems of agriculture would be much easier of solution. The automobile industry, it is said, reduced its production over 40 per cent in 1930, as compared with 1929. A similar curtailment of the production of other industries resulted in the acute unemployment problem which is facing the nation at the present time, and has added much to the difficulties of agriculture. If the various industries of the country could work in better coordination, it would go a long way toward relieving the unemployment situation. I imagine the plan of a national industrial commission is patterned somewhat after the Supreme Economic Council, a feature of the Soviet system, which the Soviet people maintain will eliminate unemployment in the Soviet union. This country may never adopt a national industrial commission plan; nevertheless, efforts will be made to correlate more effectively the production of the various industries of the country, and those of us who are interested in agriculture must exert our efforts toward a better coordination of the production activities within the agricultural industry.

With the passage of the act creating the Federal Farm Board the responsibility of improving the economic condition of agriculture was placed upon the Federal Government. The nature of

the problem is such that the national government must take the initial step. The gradual mechanization of agriculture in certain areas has brought out the fact that there are great differences in the cost of production of certain commodities as between different areas or regions. That some regions are better adapted for the production of certain farm commodities than others has become increasingly apparent during the last few years. In view of that, it appears to me that the problem of what best to produce and where to produce it is a regional problem and that the adoption of a plan of regional adjustments is essential.

Most of the farmers in the country are quite willing to follow suggestions which they believe might improve their economic condition. The results obtained by the extension forces of the country in improving methods of production is an indication that we have not yet exhausted the possibilities of improvement in agriculture by voluntary action of the farmers. Some will hold that the only way adjustment in agriculture can properly be made is by the limitation by law of production. The six and a half million separate units in agriculture make control of production appear most difficult through voluntary action. In the past, however, we have not laid much emphasis upon the economic considerations in the information we have presented to the farmer, but have confined ourselves largely to improvements in technique. We have, therefore, not tested the possibilities of control over agricultural production. The time has now arrived when we must stress the economic considerations if we are to obtain the benefits of improved technique.

In the past we have given much attention to competition in agriculture from foreign countries but have paid little attention to the competition between regions in this country which, from the standpoint of prices, may be just as disastrous and, under our present set-up, more difficult to prevent. Thus far, the economic information that we have broadcast has been of a general nature, having largely a general application. Since the passage of the Agricultural Marketing Act, much more consideration has been given to the local economic problems by the extension forces of the various states; they have made a decided effort to adjust outlook reports to meet the local needs. We have, however, not sufficient information available to the farmers in the various states to advise them very definitely as to what combination of enterprise is best suited to their needs. I think the members of the Farm Board, on whose shoulders the responsi-

bility of improved agriculture rests, appreciate that they are very much handicapped by a lack of information as to the crops to which the present surplus crop producers should turn.

Mr. Stone announced in his address before the American Institute of Cooperation last summer that "We also expect to make a study of the various sections of the country and bring to the attention of the farmers of each section the crops and livestock they can produce to a better advantage than other sections." At that time Mr. Stone gave no details of the plan. One proposition which we must face fairly and squarely is whether that type of work should be carried on by the Federal Farm Board or whether it should be carried on by the U. S. Department of Agriculture in cooperation with experiment stations of the various Land-Grant Colleges. If I interpret the Marketing Act properly the Board has the power.

I think most of the agricultural economists will agree it would be much better all around to use the present research agencies than to set up a new agency within the Farm Board.

In an address delivered before a meeting of the American Bankers' Association at South Bend, Indiana, on December 4, Mr. Alexander Legge, Chairman of the Federal Farm Board, closed his address with this significant paragraph:

> While we are getting earnest cooperation of the Extension Service, County Agents, Agricultural Colleges, Vocational Teachers, organizations, and others interested from a state and national standpoint, there isn't anybody in quite as good position to help us bring about a reasonable adjustment of production schedules as you who are financing the producers. You have an exceedingly important part to play in the program and we earnestly solicit your cooperation to that end.

I do not know just what Mr. Legge had in mind as to a policy that the bankers might pursue in using the purse strings to control production. I rather think that he must have had in mind that they should be but one factor in a national set-up in bringing about a proper adjustment. Under the present situation, a local banker is not in position to advise on just what crops he should make loans, just where production should be expanded, and where it should be curtailed. Any control of production through control of the purse strings would meet with a very decided opposition from the farmers themselves, unless it came about from a very carefully prepared program, the merits of which would be evident to the public, and especially to the farmers. There is, however, an opportunity for assisting in bringing about readjustments by preventing the unwise exten-

sion of credit on certain commodities in areas where those commodities cannot be economically produced. In order to utilize the power of credit in that manner, it is necessary to provide for extensive regional research looking at agriculture from a national viewpoint.

I have introduced a measure after consulting with agricultural economists from various sections in the country interested in the problem, which is designed to make possible regional readjustments. The first step in the plan is to outline accurately the type of farming regions in the United States.

The major regions, such as the cotton-belt, spring wheat-belt, and corn-hog-belt, should be split up into the natural geographic divisions. This delineating of areas probably could best be done by the Secretary of Agriculture with the advice and assistance of the directors of the experiment stations of the Land-Grant Colleges. These regions should be based primarily on the general similarity of the crop and livestock production. In order to coordinate research within a region in terms of regional, rather than state lines, there should be established by the Secretary of Agriculture regional research councils, composed of directors of agricultural experiment stations of the Land-Grant Colleges, or their authorized representatives, and an official of the Bureau of Agricultural Economics of the United States Department of Agriculture. Such a set-up would make it possible to determine the relative advantages, costs, and returns of different crops, livestock, and various lines of production in each economic region.

This would form a basis for determining systems of farming which would most economically and profitably utilize the resources of each region in relation to the national agricultural situation. In this connection, it would be well for each research council to appoint an advisory board, made up of representatives of such groups as farmers, producers' cooperative associations, processors, and handlers of the more important products of the region, representatives of the Federal Land Bank, the Federal Reserve Bank, and some representative of the public. Such a research set-up would make it possible to analyze the competition between the various economic regions of the United States and to appraise the present and prospective competition between regions in different sections of the country and in other countries; and to make possible the securing of information on the present and prospective supply and demand of several farm

products and the probable effect on markets and prices. Such information would make it possible to assist the producers in a particular region to determine the modifications, if any, in their farm management and operation plans, or any modification of the systems of farming within the particular region.

In connection with the activities of the regional research councils, there should be established some method to determine by means of experiments and tests, under actual farming conditions, the economic feasibility of systems of farming and farm organization methods and practices worked out as a result of research studies. These tests may be carried out by two possible methods, or a combination of both. The first, by a cooperating arrangement area with certain farmers of an area. And, second, by the establishment of regional research corporations, these corporations to be operated under a revolving fund obtained through Federal appropriation, and to be organized under the direction of the Secretary of Agriculture with the approval of the research councils under such rules and regulations as may be agreed upon by the cooperating agencies.

The farms operated by regional research corporations could be considered agricultural economic proving grounds, or economic laboratories where adjustments are actually tried out and a careful analysis made of the results. This would provide a source of information for extension people to carry on educational work along the lines of assisting the farmers in a particular region to make adjustments in their farm enterprises. The various large industries of the country now carry on research in their individual plants, and are able to base their operations upon such findings. In the case of agriculture, it is necessary to provide such information through the medium of public funds. Even in agriculture certain private organizations are now conducting a certain amount of economic research in connection with large-scale farming operations. But, if the condition of agriculture is to be improved, it will be necessary to have the type of research outlined above made available to the farmers, generally.

The proposal I have outlined calls for additional Federal appropriations to the Land-Grant Colleges to provide the necessary personnel for carrying on the work, and also a substantial increase for research in the Bureau of Agricultural Economics.

Weather conditions play an important part in the total production of a crop; nevertheless, the average annual amount pro-

duced is somewhat within the control of human effort, as a study of crop records will reveal. I feel that the problem of adjustment in production, which involves a certain amount of control over production, is fundamental to any legislative proposal designed to increase the farmer's income, whether it involves the Debenture, the Equalization Fee, stabilizing corporations, or lower transportation rates for the farmers in a given region. Increased returns to any given enterprise have a tendency toward increasing production. In agriculture this has resulted in aimless shifting from one enterprise to another and consequent fluctuations in prices. I firmly believe this situation can be materially improved by regional readjustments in production, based upon information obtained through research such as I have outlined.

FARM MANAGEMENT OPPORTUNITIES AND RESPONSIBILITIES[1]

H. C. M. Case
University of Illinois

With the final objective of helping the individual farmer to improve the organization and operation of his own farm, the farm management worker must have regard continually both for the information needed by the farmer and the method of getting it to him in usable form. In securing efficiency in farm management extension and research activity, the two lines of work are so interdependent as practically to require a close integration of the two. A brief examination of the development of agricultural extension work appears to give some basis for a better appreciation of the present opportunity in meeting this objective.

When the Smith-Lever extension work first came into existence in 1914 enthusiasts claimed that experiment stations had a vast amount of useful information awaiting adequate means of reaching the farmer. This, however, was not true of farm management. Prior to that time little farm management research had been done and it was difficult for the farm management worker to find his place in the extension program.

County agricultural agents accepted first those extension projects that lent themselves most readily to demonstration. It was an easy matter to demonstrate the treatment of oats for smut and the effect of fertilizers upon plant growth. These and similar projects completely occupied the attention of many county agents for some years. It was more difficult to present facts concerning the balance of the entire farm business, especially without any easy means of demonstration and with the dearth of research data.

Without records of their own or of other farms to guide them, farmers are apt to specialize in that phase of their business in which they are already the most expert. In other words, the good seed man wants additional help along those lines. The same is true of the cattle feeder or hog raiser. In the early days of extension work this tendency was particularly manifest. Such specialization has merit on some farms but the majority of farms are diversified at least in the things they produce and a record of the entire farm business is needed to demonstrate to many

[1] Paper read at the twenty-first annual meeting of the American Farm Economic Association at Cleveland, Ohio, December, 1930.

men that they are giving their greatest attention to those things in which they are already the most proficient and are failing to improve other essentials of good farm practice. Farm management, including research and extension, should provide a remedy for such a situation.

Although farm survey records have proved valuable in giving a cross-section picture of farm conditions in a locality and have been the means of establishing basic principles, the early attempts at using a survey record as a basis of extension teaching did not attain the full success desired by extension workers. This was more true with some types of farming than with others. When survey records were used as a basis for reorganizing the farm business, many farmers questioned the accuracy of the findings, feeling that the record as taken offered opportunities for many errors. Although such a feeling of errors may have been imaginary in many cases, the experience in a considerable number of states has shown that the better means of conducting farm management extension work consists of using as a basis the actual records kept by farmers of their own business. The records provide a basis for field demonstration in the form of farm management tours and for group meetings as well as the best basis for teaching the underlying principles of farm management to individual cooperators. Such records may include either the entire business or a portion of it. Where a single enterprise makes up the greater part of the business, enterprise cost records serve an important purpose. For most sections of the country where diversified farming is common, the record of the entire business provides the better approach. In support of this statement, careful thought is needed in determining the rôle of the farmer's record in the extension program.

One view is that the real purpose of the farm record is to help the farmer determine what phases of the local agricultural extension program he should adopt for his own farm. That is, the record of a particular farm may be used as a logical basis for selecting those extension projects, offered by specialists in soils, crops, horticulture, dairying, animal husbandry, or farm mechanics, which will help the farmer correct his greatest weaknesses, thus increasing his farm earnings by improving that part of his business where the effort expended will give the greatest returns.

A second point of view is that of using farm records as a basis for building a county program of agricultural extension work.

Looking back at the progress of extension work it appears that extension programs have led some farmers to accept many of the more obvious improvements needed on their farms. As these improvements are made, the more imperative becomes the need of some gauge of the entire business that will focus attention upon those phases which will respond most to intelligent treatment. What applies to the individual farm applies in many respects to farms throughout a community. Records from a number of farms provide an excellent basis for determining upon a county or community program of extension work, particularly where conditions in the area are fairly uniform, and they provide demonstration material to use for farmers other than those cooperating in keeping accounts. Thus, as the agricultural extension program becomes matured in a state or county, the greater the opportunity for intelligent farm management work. With this opportunity comes increased responsibility, both in research and extension.

In this connection it should be noted that farm financial records are not a substitute for other types of basic research. Like survey records and cost accounting as well, they have been valuable in the past and will continue to be of value in helping to establish basic principles; financial records have gone further than survey records, however, in that they serve to bridge that gap between research and the farmer in setting up standards of accomplishment with which he can measure his own operations. While basic principles once established are but little affected by changes in practice, there is need for revising the standards of accomplishment and for reapplying these principles from year to year as the practices change in different parts of the farm business if the measures of success to be applied to the individual farm are to keep abreast with the changes made.

Our Changing Agriculture

One of the first points to be noted is that the farm management problems of an area are such that research and extension work are never finished. Although the basic principles underlying farm management change but little over a period of years, changes in economic conditions necessitate changes in the methods of production and in the kinds and proportions of the products if maximum profits are to be secured. A farmer who has already established a good system of farming has before him the continued need of recording the results and of studying them

to determine the desirability of further change. Perhaps never have such far-reaching changes taken place in agriculture in a like period of time as since the advent of the Smith-Lever Act.

This is well brought out in the analysis of two groups of records on an identical group of farms, one of which was secured at the very beginning of the county agent work and the other at a period fifteen years later, showing the influence of many external factors upon the agriculture of that community during the fifteen-year interval. The community, located some twelve miles from a growing market of 100,000 people, has been permeated by a good system of hard roads. Mechanical power was introduced. The influence of county agent work, begun in that area seventeen years ago, has helped the community to see the necessity of growing legumes after nearly a century of extractive farming. Most of our present knowledge concerning livestock sanitation has been developed and made available and has been applied by many of these owners. Four crops were introduced which are becoming important in the area; namely, sweet clover, alfalfa, soybeans, and barley. Inspection of the farm inventories might suggest that hog production has declined; records of sales, on the contrary, show that it has increased but a change in practice has taken place: that of selling pigs at six months of age instead of nine to twelve months of age. The number of farm workers has declined but the production per man appears to have increased more than 20 per cent. Three of the fifty-four farms have been entirely absorbed by others of the group and their average size has increased 17 per cent. At the beginning of the period an occasional man had used limestone or rock phosphate. These products have now been used on 55 per cent of the farms.

It is this continual change in methods and types of agricultural production, perhaps never more rapid than today, that makes the problem of the farm management workers one of growing importance. They need to anticipate as far as possible the important changes that are going to take place. The full effect of the change, however, cannot be forecast. When it occurs it must be analyzed in the light of its influence on total farm earnings. This makes more important the prompt analysis of new developments as they arise. While such changes do not alter basic principles of farm management, they do change the standards of farm management, they do change the standards of accomplishment and the most profitable combination of enterprises.

Problems Peculiar to Farm Management

The thinking of the more forward looking farmers has been quickened, undoubtedly, by the development of extension work. They are looking into the future and want information concerning new practices before trying them out.

This places the farm management workers in a peculiar position since in research there is need of getting from the farmer the information regarding the effect of new practices on the economy of production in order that the extension programs may make such information available for the use of the farmer. Putting it in its narrowest terms, many of the most progressive farmers are pioneering the way in new methods and in new combinations of enterprises. These men are eager to get the results of similar experience. Thus extension demands push hard upon research.

The element of timeliness is especially pertinent to farm management research. The greatest effectiveness of many farm management research projects has been lost by the interval occurring between the collection of information and making it available to the farmer. Technical bulletins based on several years of research data which are basically sound and which help establish principles of farm management may appear to the farmer as being out of date. Therefore, it is reasonable to believe that because of their timeliness the mimeographed reports of farm management research may be more effective in changing farm practices than the more carefully prepared formal publications. It has been a policy of the writer to return information to farmers as promptly after it was gathered as possible even though the number of formal publications has been curtailed as a result. It is the conclusion after several years of experience that a page of mimeographed material is more potent in affecting farm practices than an equal volume of material put out in formal publications which of necessity must reach the farmer after a longer interval following its collection. If we are to measure the results of farm management research in terms of the extent to which it affects farm practice, the above statement appears to stand the test.

Necessity of Thorough Research

The importance of the element of timeliness does not in any way lessen the necessity of thorough-going research. It is generally recognized that farming problems differ widely in different

parts of the country and even of a single state, and as a result a piece of research does not apply equally well over wide areas. This variation requires giving the proper recognition to the farming type areas. Nearly every state has a number of areas in each of which the predominating type of farming is essentially different from that of adjoining areas. It must be recognized that while many features of the farming type areas are quite permanently fixed, some of them are changing in response to changes in transportation, markets, prices, or biological conditions. Such changes may give rise to many types of farms which differ from the predominant type in the region. While it has been quite customary to analyze data from groups of farms as a unit and thus determine the main factors affecting their organization and operation, the tendency for new systems of farming to be developed within a region creates an additional need for recognizing the management of outstanding individual farms whose organization would be overlooked when the farm is used in an average. While the success of such farms may be due to the unusual ability of the operator, such individual farms frequently indicate changes which the more forward looking farmers are undertaking; in the course of time such changes may have a marked effect upon the type of farming of the area. Fifteen years ago, for example, a farm management study in east central Illinois might have overlooked the growing of soybeans, but at the present time the half million acres grown in the state are concentrated to quite an extent in this area and the crop has a place in the better systems of farming.

At this point it is well to reflect that in most farming type areas, especially where there is a variety of products for sale, there is no single best type or system of farming, but there may be several systems of farming which are equally promising. This is due to such factors as differences in the managing ability of operators, the available family labor, available resources including credit, the productivity of the soil, and other characteristics pertaining to the particular farm in question. This emphasizes the necessity of studying a large number of farms in farm management research and of analyzing the results of outstandingly profitable farms over successive years. Since outstanding farms in the same region may vary widely in their systems of production it is well to emphasize the underlying principles of good management and standards of accomplishment rather more than specific types or systems of farming.

Cost Studies Essential

Recognizing the many changes taking place in agriculture, it has never been as important as at present for the farm management research program to include studies in the cost of production including both physical quantities and money costs, pertaining either to particular practices, enterprises, or to the entire farm business. New practices are putting emphasis on the place of the cost method of analysis. Whether to harvest grain with a binder and stationary thresher, by direct combining, or by windrowing and combining; whether to husk corn by hand or with a one or a two row mechanical husker; whether to cultivate row crops with mechanical power or horse power; and what effect such changes are having on the relative profitableness of crops and on labor demands—these are questions requiring cost of production studies. The production of more and more machines designed for a particular purpose makes more imperative the need of such information.

To be more useful, however, farm cost of production data must be kept primarily within the sphere of usefulness claimed for them by those most familiar with farm practice, namely that of improving the internal organization and operation of the farm. No adequate analysis of the relative merits of different types of equipment can be made unless costs, at least for dissimilar items, are reduced to a common denominator, which is most readily understood when expressed in terms of money. For example, the many different combinations of labor, horse and mechanical power and equipment which arise because of the greater and greater substitution of capital for labor render obsolete some of the older measures of efficiency of the farm business. With the many variations in the methods of performing the same job, crop acres handled per man or per horse, horse work units, and net returns per hour of man labor have less value. Under these changed conditions in production methods, cost data, whether enterprise costs or complete farm costs, are becoming more necessary. They are, moreover, a material aid in interpreting the less complete records now being kept by thousands of farmers.

The Place of Outlook Material

In providing farmers the information adapted to aiding them in developing their farms into well-balanced business units, the interrelation of farm management research information and outlook material should have careful consideration.

The agricultural outlook carries essentially the same objectives as have been embodied in farm management effort for years. Outlook material, particularly when considered on a commodity basis, may miss the full economic interpretation in terms of good farm organization. It has long been a purpose in farm management to help establish well-organized farms which over a period of years seemed adapted to natural, biological, and the more strictly economic factors. Quite as much emphasis has been placed upon such a combination of enterprises as would provide for economy of operation as upon the market outlook, while the outlook reports in general stress the latter and place the emphasis upon short-time changes in demand for particular products.

At this point it is well to discern some of the differences between the long-time and short-time points of view. Fundamentally there are some pertinent distinctions to be made regarding long-time farm organization and operation and the use of information focused on the relatively near future. For many years the soils and crops specialists as well as farm management workers have been urging farmers to adopt good crop rotations. To advise a man to change the proportion of his land devoted to different crops on the basis of prospective conditions for a single year tends to be a disrupting factor in the eyes of many thoughtful people, who, however, are as ready as anyone to accept long-time changes which promise increased earnings. New crops are bound to be introduced when their profitableness in a system of farming has been proven, while other crops may be displaced through competition with other areas.

There are reasons why the cropping system should be looked upon as a long-time proposition, especially in those areas where it is devoted to the production of feed crops. An analysis of the production of our staple crops in the country brings one to the realization that the large variation in total production from one year to the next is due more largely to variations in yield than those in acreage. In other words, the shortage or surplus of production from one year to the next cannot be anticipated far in advance. A well-conceived long-time program of production, therefore, may readily coincide with the point of view of the agronomist who is working to aid the farmer in establishing a safe, long-time system of cropping. This may not be altogether true of some of the minor crops such as broom corn for example, which are not grown for feed and which represent a small total

acreage of crop, where changes in conditions from year to year or the amount of carry-over may call for a marked change in the acreage.

In livestock production it appears that a shorter-time point of view may be accepted as a guide in adjusting production on a particular farm. The prospective supply of livestock and livestock products is more readily discernable some time in advance than is that of crops. This affords many farmers an opportunity to take advantage of short-time adjustments in their output of livestock products for the market. Even here care needs to be exercised to retain foundation breeding stock of known health and performance, and the kind of adjustment which may be made profitably depends to quite an extent upon the relative productive efficiency of the livestock on the particular farm in question. These views are intended to point out the need of harmonizing the programs of agricultural economic workers and those of other agricultural subject matter workers.

Another just criticism of much outlook work is that the attention has been focused upon the objective to be obtained in total production, without due regard to the individual farmer's position. Outlook reports of necessity deal with blanket recommendations, but when these are applied to states or smaller areas there is need of interpreting the outlook to fit local farming conditions. Price outlook information is only one of a number of factors which the farmer should consider when deciding to increase or decrease the size or intensity of any farm enterprise.

In the use of outlook information it should be recognized that farmers vary in their ability; likewise, there are differences in the economic possibilities of their farms. On the one extreme is the farmer who has not accepted many of the newer agricultural teachings. A study of his business will show that his whole system of farming needs to be brought in line with the best known practices to insure economy of production rather than readjustment to meet the immediate market outlook. Fundamental help is needed in applying the well-known principles of farm management, so as to secure a good basic organization. It is more profitable to demonstrate to such a man the need of a well-organized system of farming that is adapted to long-time conditions than to teach him to make intelligent short-time changes in production from year to year in response to the immediate outlook. At any rate the adoption of a safe system of farming is attacking

the problem of such a farm at its weakest point; as a systematic plan of farming is developed there is greater opportunity of making short-time changes.

On the other extreme there is the type of farmer who has his farm well organized from a long-time point of view. He has put into practice the best that has been brought to him through the extension service, and he knows how these practices have affected his earnings. To such men the outlook information depicts changing economic conditions which promise to be of sufficient duration to warrant the undertaking of changes in the fundamental organization or plan of operating the farm business and secondly provides a basis for making minor adjustments from season to season which do not disrupt the basic organization of the farm.

Certain farmers with their businesses well organized from a long-time point of view frequently will make more profit in holding to their present organization than in responding to suggested changes which may be poorly adapted to utilize available family labor, equipment or other resources on his particular farm. The highly efficient hog producer, for example, who consistently produces hogs on a cost basis equivalent to the corn and hog ratio of 8 or 9 to 1, has little to gain in reducing production even in years of poorest prices. Therefore, vital as it is to the farm business, the interpretation of outlook information should not be separated from the farm management point of view which recognizes the individuality of the farm and its operator.

Promoting Better Farming

One of the appeals that farm management work has made to many farmers is that the results of research represent what is being done by other men under conditions similar to those on their own farms. Farms in the local community have a more decided effect upon the introduction of improved practices upon other farms than those which are more distant.

It is not surprising, therefore, that the use of the actual farm used as an example or demonstration has attained perhaps greater success than other methods of improving the organization and management of farms. Specifically the plan that appears to have given best results is that of securing the cooperation of a considerable number of farmers in a county in keeping financial and production records of their business to provide demonstration material. In most communities, in diversified farming re-

gions, farms may be found which represent approximately the best that is known regarding the organization and operation of particular enterprises and occasionally of the entire farm and which may serve to demonstrate several systems of farming that are adapted to the area. Using these illustrations on farm tours, in group meetings, and in work with individuals places the farm management worker in a safe position. He is able to say to a farmer: "Here are one or more systems of farming which have been used successfully by other men in this community and which gave these results. If you are able to put one of these plans into operation on your own farm, you should receive similar results under similar price conditions and with equally good management." Such systems may be used as the basis for budgets in helping a man to develop a plan for the improvement of his own farm.

This plan places the farm management worker in a strategic position because the responsibility for success is placed, as it ought to be, directly upon the farmer himself. Some other approaches do not shift the responsibility for success from the shoulders of the worker. For instance, the use of a "model farm" set up as an example for the community with the details of its plans of operation worked out for the farmer is faulty in that much time is required in getting results after the plan is put into operation, and in the meantime it receives the adverse criticism of other farmers, especially if the operator has difficulty in executing the plans. This delay and criticism can be averted if farms are selected which already represent a high standard as shown by the records of their businesses. Likewise, the experimental farm under the supervision of an institution such as an agricultural experiment station may have merit in newly-developed regions where farm practices are not standardized but it seems to offer little possibility in old established farming regions for it is subject to much the same faults as the model farm, and in addition, farmers will say they are unable to control production conditions to the same degree as they are controlled on the experimental farm.

The use of actual farms as a basis of demonstration presupposes that farmers will keep accounts which are used as a basis of farm management extension work. No one farm is selected as a single standard but with many farmers keeping records in a county, several may be used as demonstrations, as for example, on farm management tours. When farmers learn that the farms

of several of their neighbors are being used as examples, not as model farms but because some phase of the business represents an example of good practice, they lose much of their critical attitude. The same financial outlay which might be put forth in establishing a "model farm" or an "experimental farm" will suffice to secure records on many farms in sufficient detail to give a careful analysis of their organization and operation.

In Illinois, for example, under a plan of work initiated fifteen years ago, approximately 2,500 farmers are now cooperating in keeping farm financial and production records as a phase of Smith-Lever Extension work. In addition to this group of farmers who send their accounts to the university for analysis, a large number secure the books annually for their own use. From among these cooperators, four cooperating groups totaling 840 farmers have pledged for periods of three or four years to pay more than $17,000 annually to secure farm management service which has been developed cooperatively by the University of Illinois and the local farm bureaus, and which is known as the Farm Bureau Farm Management Service. This service, which calls into use the farm management research findings and outlook information, aims to establish systems of farming which are economical of operation, suited to the farmers' resources, and adapted to long-time trends in economic conditions. At the same time, minor changes in organization which do not disrupt the basic organization of the entire farm unit are made from year to year.

Whether or not the support given by farmers to such a farm management program is an accurate measure of real accomplishment, it is at least gratifying to a department whose existence in the long run is dependent largely upon the cooperation of farmers. It is believed however that the entire program is carrying toward the final goal of a better country life.

SOCIAL AND ECONOMIC ASPECTS OF LARGE-SCALE FARMING IN THE WHEAT-BELT[1]

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Large-scale farming in the wheat-belt is developing in response to economic forces that make it appear to be the inevitable result. Just as the automobile has displaced the horse and buggy as a means of travel because it is more satisfactory and more desirable, so the large-scale farm is displacing the small and medium sized farm of the wheat-belt because it more satisfactorily meets the needs of the people concerned.

To avoid misunderstanding it is desirable at the outset to define large-scale farming as the term is used in this discussion. By large-scale farming is meant approximately the maximum acreage that can be farmed as one unit. In all probability the unit will consist of the acreage of land which one family can till to the best advantage. The area tilled as one farm has always tended to be that which one family can handle advantageously. Apparently there is nothing in the present situation which will overcome the economic forces which have made a unit of this size most desirable. Probably the strongest factors encouraging the farm of family size have been the limitations associated with the handling of large areas from one center. It has never been possible to concentrate labor profitably on land in regions of extensive farming. Concentration of labor on land is contrary to the nature of extensive farming. The labor is spread out over large areas of land and the quantity of labor that can be employed advantageously from one center is usually the labor which one family furnishes.

In addition to the limitation of area there are social forces involved in the family character of farming which tend to keep the typical unit of land of such size that one family is employed upon it. These forces are sufficiently well understood so that further elaboration of them seems unnecessary.

To summarize, large-scale farming in the wheat-belt means farming where relatively large areas of land are farmed by each family under the family type of farm operation. The reasons for thus restricting the definition of large-scale farming will be discussed later.

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[1] Paper read at the twenty-first annual meeting of the American Farm Economic Association, Cleveland, Ohio, December, 1930.

During recent years improvements in agricultural machines have materially increased the area which one man can handle in the level regions of the wheat-belt west of the one-hundredth meridian. The tractor, the truck, the automobile, the combined harvester-thresher, and other farm machines associated with those mentioned have made it possible for one man to farm two or more times as much land as was possible 10 to 20 years ago and to perform the farming operations in a much better manner than before. This has resulted in the lowering of costs and the increasing of incomes for those who could take advantage of the improvements.

The advantage in reduced cost which comes with the use of the newer types of equipment on the larger acreages is well illustrated by the following data taken from farm management studies made by the Kansas Agricultural Experiment Station in cooperation with the Federal Bureau of Agricultural Economics.

In harvesting wheat, combines reduce costs approximately one-half compared with the cost when binders and headers are used. For example, where 400 acres of wheat were harvested the cost per acre of harvesting with binders was $4.37, with headers $3.41, and with combines $2.35. The advantage of the combine applied chiefly on the larger acreages, for when 200 acres were harvested with a binder the cost per acre was also $4.37, with a header it was $3.47, and with a combine $3.20; and when 100 acres were harvested the cost per acre with the binder was $4.53, with the header $3.57, and with the combine $4.91.

These lower costs secured on the larger acreages by using combines have encouraged farmers to purchase and use combines and have encouraged the formation of larger farms whenever possible.

The advantage has not only been in using combines and in securing larger farms so that larger areas of wheat may be grown but the costs can be lowered further by using the larger combines. The advantage of the larger combine is illustrated in the following table showing fuel and labor requirements per acre with combines of varying sizes.

Two men were required to operate each outfit. The investment in the larger outfits was not proportionately greater in accordance with the width, consequently the economy of the larger machines is quite evident particularly where the larger acreages can be grown.

These advantages in reduced costs are so great and so urgent, in view of the present low prices of farm products, that farmers are exerting every effort to take advantage of them. This in large measure accounts for the tendency toward larger and larger areas for each farm.

The story is not entirely one of wheat, however. In the central and southern portions of the hard winter wheat-belt grain sorghums are yielding well and their acre value has equaled and often exceeded the acre value of wheat. If production costs can be reduced comparably with those of wheat, grain sorghums will be a formidable competitor of wheat for the use of the land. The chief hindrance to the wider growing of grain sorghums has been the hand labor involved in harvesting them. Varieties of grain sorghums are now being developed which can be harvested with

TABLE 1.—RELATION OF SIZE OF COMBINE TO LABOR, FUEL, AND OIL REQUIRED TO HARVEST ONE ACRE OF WHEAT IN SOUTHWEST KANSAS IN THE 1930 HARVEST

Size of combine in width of cut	Average season's cut per combine (acres)	Man labor per acre of wheat harvested (hours)	Fuel per acre of wheat harvested used by		Oil per acre of wheat harvested used by	
			Tractor (gal.)	Combine (gal.)	Tractor (gal.)	Combine (gal.)
10′ to 14′	347	.67	.92	.59	.033	.025
14′ to 16′	475	.56	.83	.57	.028	.021
20′	578	.45	.70	.51	.026	.016

combines. The development of these varieties has proceeded far enough to insure ultimate success, and the growing of grain sorghums on a larger scale and at low costs to the acre seems to be but a matter of a few years. This will permit farming a still larger acreage by each man since the distribution of labor on grain sorghums does not seriously interfere with wheat production.

In the northern portions of the hard winter wheat-belt, adapted varieties of corn are being grown and good yields are frequently secured. A drawback to the production of corn in this section has been the labor required to gather the corn. The development of mechanical corn pickers is overcoming this objection and it now appears that exactly the same development of corn production in the northern portion of the winter wheat-belt is to be expected as seems probable in the southern portion where grain sorghums probably will come into the picture to a greater extent.

When these possibilities are considered, both from the standpoint of what farmers are now doing and from the standpoint of what can be done, it seems probable that the future size of the

typical farm in the western wheat-belt will be considerably in excess of a section and possibly may average two to three sections. There are many efficient farms of three and four sections operated by a single family and from one central point as one farm. If one attempts to describe the most efficient unit for this region, he finds himself dealing with at least 2,000 to 3,000 acres and possibly somewhat more, particularly if livestock is included and a portion of the land is in native pasture. A farm growing a combination of wheat, corn or sorghums, barley or oats, and livestock could easily include 5,000 to 6,000 acres and be operated efficiently by one farmer and the additional labor of members of his family. This farm would include from 700 to 1,000 acres of wheat, 300 to 400 acres of oats or barley, and approximately the same acreage of corn or grain sorghums. Two hundred to 400 acres of land would be fallowed each year for wheat production. This would take a cultivated area of 1,500 to 2,200 acres. The remaining portion of the land would be devoted to pasture.

Since this is the size of farm toward which the agriculture of the western country seems to be going, it is of interest to consider the problems involved. One of the first problems is that of securing the land. The investment in land, equipment, and livestock would vary from $50,000 to $200,000. Few farmers amass fortunes of this size. The investment in equipment and livestock could easily total $25,000 to $50,000. This, again, is a fair-sized fortune. How is the farmer to secure the needed land and the funds required for operating purposes? It is in the consideration of this problem that the arguments in favor of the corporate type of organization are most telling.

The corporation presents an opportunity to secure the capital needed and it is possible that more corporations may engage in farming as time goes on. However, it is significant that at the present time less than 100,000 of more than 12 million acres of wheat grown in Kansas are grown on land owned and operated as corporation farms. This is less than 1 per cent of the wheat acreage of the state. Corporation farms lack the social advantages which go with farm life for a farm operator and his family. The family of the manager of a corporation farm does not usually feel that it is an integral part of the farm business, consequently the corporation-owned farm operated by a manager lacks one of the factors of outstanding importance in making a farm successful. This factor is the interest and cooperation of the entire family. The chief advantage of the corporate type of organiza-

tion is in the ability to secure the needed capital and to insure that the best practices can be followed if those practices require the investment of additional sums of money.

Obviously, one of the outstanding unsolved problems of the hard winter wheat-belt, and probably of all of the western wheat-growing regions, is the form of tenure under which the farm land in this region is to be held and operated in the future.

Another problem that is of more than passing interest is that of the community life of the region. The corporation farm has been criticized because it combines farms and eliminates farm homes, thereby detracting from the social life of the community. Such criticisms are usually not warranted for in the regions where corporation farms have taken over large contiguous areas of land, there has been practically no community life in rural sections. Farm houses are few and far between and many of the farmers reside in towns and go out to their land when it is necessary to work on it. Many of them are part-time farmers and are devoting their other time to other types of business. Many college students and school teachers use their summer months for the growing of wheat.

Since only a portion of the farmers reside within the rural community, the community life has not been materially developed. Rather, the farmers have found their community life in the towns. They find living conditions better there and living in town is not a handicap in wheat farming where one can travel 10 to 20 miles in a few minutes and be on the farm ready to start to work with a tractor. The farmer who is 15 miles from his farm and who uses tractor machinery, can leave his home in the small town, go to his farm and get his tractor under way just as quickly as many corn-belt farmers can go from the house to the barn, harness and hitch up their teams and get to the field. This situation has its influence on churches, schools, and other social institutions. They are tending to center around the small towns within the wheat-belt. Apparently, these people are just as happy and are enjoying life just as much as, and perhaps more than they would if they lived on the land which they are operating. They are farmers who live in town and enjoy the advantages of both farm life and town life.

In sections where schools have been developed, they have found the number of pupils available to attend these schools to be declining. This has occurred becaused the children who formerly were in the community have moved away as farms have

been consolidated. This situation is well described in the following pertinent abstract from the report of the School Code Commission.[2]

"During the school year 1927-28 there were six schools in session with no pupils enrolled, fifteen with one pupil each, thirty-four with two, sixty-eight with three, one hundred and thirty-two with four, and one hundred and fourteen with five, or a total of three hundred and sixty-three with five pupils or fewer enrolled."

Up to the present time the school problem has not been solved. The trend that its solution seems to be taking is to concentrate the educational facilities in the towns.

The change in the agriculture of this region is also having its effect on banks, stores, churches, and other agencies within the towns. Those agencies dependent upon the number of people in the community for their volume of business have found this volume to be shrinking as the population of the region has declined. The population of the region has declined as the farms grew larger and the number of farmers became fewer.

These are merely some of the many problems involved in the transition that is under way in the western portions of the hard winter wheat-belt. Their outcome is of more than usual interest for if the mechanization of agriculture goes on, somewhat similar changes are to be expected in the older sections of the country.

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[2] Report of the State School Code Commission of Kansas. Volume I. June, 1928. Page 10.

MECHANIZATION OF COTTON FARMS[1]

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Striking progress has been made in parts of the South in recent years in the mechanization of cotton production. Modern machinery is now being used to a considerable extent in the production of a crop which for generations has been characterized by hand methods of production. Mechanization is of more recent origin and has made less progress to date in cotton than in corn or small grain production. The effect of this increasing mechanization of cotton production is likely to prove even more striking in its economic and social aspects than with the agricultural production in which the use of machinery has increased gradually over the past fifty years or more.

The average value of machinery and implements per farm in 1925 was $179 in the ten principal cotton growing states as compared with a value of $640 per farm in the north central states and $423 per farm for the entire United States. According to estimates by representatives of the farm implement trade, 450 million dollars worth of machinery was purchased by farmers in the southern states in the five years, 1925 to 1929. This is 80 per cent of the figure given in the agricultural census of 1925 as the value of all machinery then on farms in the South. The value of farm machinery sold during the past five years in the four southwestern states where the progress in mechanization has been most rapid exceeded the 1925 census value of machinery and implements by 15 per cent.

The conventional type tractor has been used to a limited extent in cotton production for the past fifteen years. However, the old type, four-wheel or track-laying, tractor has never reached the degree of popularity with cotton growers that was accorded these machines in the small grain, fruit or general farming areas. The general-purpose tractor with its attendant specialized farming equipment has been gaining rapidly in favor in the South since its introduction some five or six years ago. It is the general-purpose tractor and the machinery commonly associated with it that is the basis of the present revolution in cotton production methods.

In 1920 only 1 per cent of the farms in the southern states

[1] Paper read at the twenty-first annual meeting of the American Farm Economic Association, Cleveland, Ohio, December, 1930.

were equipped with tractors. At this same date 7 per cent of the farms in the north central states had tractors. According to the agricultural census, the percentage of tractor-equipped farms doubled in the five years between 1920 and 1925 in both of these areas. At the later date one farm in fifty was tractor-equipped in the South and one in seven in the north central states. In both cases the tractors were almost exclusively of the conventional type, the farm implements being drawn behind the tractor rather than attached to or being a part of the tractor as is the case with the more recently introduced general-purpose type of tractor.

No authentic figures are available as to the number of general-purpose tractors now in use in cotton production. The number of all tractors in use on southern farms has been conservatively

TABLE 1.—INDEX NUMBERS OF FARM OPERATING EQUIPMENT SALES, 1929
1925 Sales = 100

Area	All Farm Operating Equipment	Tractor Plows	Horse Plows	Tractor Disk Harrows	Horse-Drawn Disk Harrow
South Atlantic States.....	97	224	81	380	76
East South Central States..	191	272	132	460	106
West South Central States..	245	568	110	322	112
All Southern Cotton States.	190	470	107	363	95

estimated at slightly more than double the 1925 number. Approximately 5 per cent of all farms in the South now have tractors, about 150,000 tractors on three million farms. In certain areas, particularly in the Southwest, large acreages of cotton are now being produced with tractor equipment. The following figures, furnished me by a leading equipment manufacturer, are an index of the change that is going on in the equipment used in cotton production.

To be sure, the amount of tractor-drawn equipment sold in the base period, 1925, was small, yet these figures indicate that the sales of tractor equipment have increased tremendously in the cotton states, particularly in the Southwest.

Cotton production has increased rapidly in our Southwest in the past ten years. It has been profitable during most of this period. Land values have doubled and trebled in the better cotton growing localities. The best cotton land is now valued at from $150 to $200 per acre. Such land is capable of producing from one-half to three-fourths of a bale per acre in average years and double these amounts in favorable seasons. Two-row,

mule-drawn equipment was generally used prior to the introduction of the tractor. The cotton is planted with a lister and cultivated in a manner similar to corn in the western part of the Corn-Belt. Boll weevil damage does not usually occur, due to the scanty rainfall and other climatic factors.

Profits on Tractor- Versus Mule-Operated Farms

Last spring representatives from the Oklahoma Experiment Station made a survey under my direction of 102 cotton farms in Tillman County, southwestern Oklahoma. General-purpose tractors were introduced into this area in small numbers five years ago. After the very profitable crops of 1927 and 1928, larger numbers of general-purpose tractors were purchased by cotton farmers. In the 1929 crop season twenty-eight of the 102 farmers interviewed in our investigation used tractors either alone or in conjunction with mules in cotton production. At the outset of the 1930 crop season slightly more than one-half of the 102 farmers owned general-purpose tractors. The introduction of tractors has been gradual up to the past two years. Profitable cotton crops and the spread of the knowledge of the lower costs of production possible through use of these machines has lent a great impetus to their general adoption.

The average of labor incomes of 74 farmers using only mules was $1,420 in 1929 with cotton selling at fourteen cents per pound. On the average farm where a tractor was used in cotton production, the labor income was $2,032. The mule farms raised an average of 143 acres of cotton and the tractor farms an average of 190 acres of cotton per farm. These are family-sized cotton farms. The common organization is that of one white operator who may or may not do any field work together with a negro family to handle the crop and some extra contract labor at picking time. Cotton and cotton seed made up 90 per cent of the total cash receipts on these farms.

In analyzing the factors causing the larger labor income made on tractor-operated farms, approximately $600 more than the average labor income on the mule-operated farms, it was found that the feed cost for the mules amounted to $4.10 per acre of cotton on the mule-operated farms while on the tractor-operated farms an average of $1.00 was spent for fuel and oil and $1.10 for mule feed per acre, a total operating power cost of $2.10 per acre. The mules still maintained on tractor farms were used less than ten days per year on the average. These mules repre-

sent some duplication of power resources while the man who has just purchased a tractor is experimenting with it. Further, prices of mules are very low in these areas where tractors have been recently introduced and farmers hesitate to sacrifice their mules until the tractor has proven itself a satisfactory source of power. The lower power cost, amounting to $2.00 per acre, on the tractor-operated farms was partially offset by the increased investment and higher rate of depreciation on the tractor. This difference would not be great if mules were valued at the cost of production rather than at the present very low market price prevailing locally.

TABLE 2.—COTTON PRODUCTION COSTS—102 TILLMAN COUNTY OKLAHOMA FARMS, 1929

	Farms using only mules	Farms using mules and tractors
Number of farms	74	28
Acres in cotton per farm	143	190
Yield of cotton per acre, bales	.54	.46
Selling price of cotton, per pound	$.14	$.14
Labor income per farm	$1,420.00	$2,032.00
Costs per acre of cotton		
Mule feed	$4.10	$1.00
Tractor fuel, oil and grease	—	1.10
Man days, except picking and chopping	.66	.55
Net returns for farmer's labor and management per acre	9.94	10.70
Costs per bale of cotton		
Mule feed	$7.60	$2.10
Tractor fuel, oil and grease	—	2.40
Man days, except picking and chopping	1.23	1.20
Mule days	5.2	.5
Tractor days	—	1.0
Net return for farmer's labor and management per bale	18.45	23.44

However, the saving in man labor costs on the tractor-operated farms and the larger cotton acreage per man made possible through the use of tractor power were more important factors in determining profits than the saving in power costs. In this investigation in southwestern Oklahoma it was found that five hours of man labor were required to produce an acre of cotton aside from chopping and picking where a tractor was the sole source of power. On the mule-operated farms, six and six-tenths hours of man labor per acre were required to accomplish the same result. This is a difference of 25 per cent in labor requirements in favor of tractor operation. The net return for labor and management amounted to one cent per pound of cotton more on the farms using tractors than on the farms operated exclusively with mules.

In the practical operation of a farm, costs per unit or per acre are not ultimately the most important factors determining the

practicability of a given method or means of production except and in so far as these factors limit the total profit. Even though the power costs per acre had been as high on the tractor-operated farms as on those using only mules, the use of tractors would have been profitable, as more cotton was produced on the tractor-operated farms. An average of 95 days of man labor aside from chopping and picking was required to produce 143 acres of cotton on the farms using mules, 104 days on 190 acres on the farms where both a tractor and mules were used, and 87 days on 175 acres of cotton where tractors were the only source of power. The man labor requirements were .66, .55 and .50 days per acre of cotton, respectively.

The Effect of Tractors on Size of Farms

Because the use of a tractor lowers the man labor requirements per acre in cotton production, the size of the average cotton farm is tending to increase in the areas where these machines are being introduced. Size of the average family farm tends toward an acreage which provides for full use of the labor of the average farm family. In an investigation in the wheat-growing section of Oklahoma it was found that the introduction of the tractor and combine has resulted in a considerable increase in the size of farm. In an old and well-established producing area this problem of increasing the size of the average farm is not solved without some difficulty. In order to bring about the increased acreage per farm some portion of the farmers must leave these areas. This is accomplished oftentimes by the more successful farmers bidding up land values out of the reach of their less progressive neighbors. Abandoned farmsteads representing a considerable financial loss are rather common at the present time in prosperous wheat sections of Oklahoma and Kansas where the tractor and combine have been introduced into regions in which the size of wheat farms was determined a decade or more ago when horse-drawn equipment was used.

While for the moment the question for the individual farmer is how can he operate his particular farm to produce the greatest net profit, the ultimate acceptance or rejection of the kind of equipment to be used depends on its effect on the income of farmers regardless of the size of farms. We can logically anticipate an adjustment of the family-sized farm to the labor requirements of the farm with the equipment, the use of which results in the greatest net profit. In the older sections of the Cotton-

Belt a family-sized farm produces from 10 to 20 acres of cotton. That is the acreage of cotton that an average family can handle with one mule and the equipment commonly in use. In the western part of the belt an average family can handle from 100 to 150 acres in cotton, using two-row equipment drawn by four or six mules. The use of the tractor still further increases the efficiency of man labor and tends to bring about a corresponding increase in the size of the average holding.

While general-purpose tractors are now being introduced in large numbers in the new cotton-growing areas in western Oklahoma and Texas, supplanting in most cases two-row, mule-drawn equipment, in the older cotton-belt the introduction of tractors has been taking place at a much slower rate. There are a number of factors that must be considered in accounting for the slower rate of adoption of modern equipment in the old South. The most important of these factors are the tenure system, the efficiency of the machinery as influenced by weather and soil conditions, the size of fields and the size of farms.

General-purpose tractors have been introduced most rapidly in the areas where cotton production has been profitable and the existence of large family-operated farms favored the efficient use of power machinery. These two favorable conditions have been non-existent on many farms in the old Cotton-Belt and hence the increase in the use of power machinery in the old South has been retarded. There are many small farms particularly in the hill sections of the South where the use of power equipment is not practical. The experience of farmers and tractor-cost studies at the Oklahoma Experiment Station and other institutions indicate that a minimum of approximately 500 hours of tractor work per year are necessary for economical operation on most farms. The introduction of a tractor on farms too small to afford this minimum of tractor use is likely to result in increased costs and lower farm profits. Low production costs in the areas where tractor equipment can be efficiently used is making the successful operation of small cotton farms increasingly difficult.

Tractors on Cotton Plantations

A second factor hindering the rapid introduction of mechanical equipment is the prevalence of the plantation system in cotton production. Under this system the labor cost savings, which are the chief economy of mechanical production, are borne by croppers and tenants who are unable to help themselves. Before

the use of tractors becomes general on cotton plantations it must be abundantly proved that their use is profitable to the plantation owners. Also there are peaks of labor at chopping and picking time which deter many plantation owners from introducing power equipment for the tillage operations. The invention of a practical cotton harvester would alleviate this situation and lend great impetus to the mechanization of cotton production in the older portions of the belt.

Not all of the obstacles to be overcome in the introduction of new methods of production are economic in nature. Custom and tradition are great stabilizers. In this connection an interesting fact was brought out in a power equipment study in Oklahoma. It was found that the median age of farmers using horse-drawn equipment in a leading wheat-producing area was 45 years while the median age of farmers using both a tractor and a combine in the same area was 36 years. One of the reasons for the recent rapid introduction of power machinery in the western cotton country was the lack of hindering customs and the progressive nature of a pioneering type of farmer. Further, the change from large, mule-drawn equipment to tractor equipment in the western cotton country does not precipitate the revolution in farm organization and business methods that the institution of power equipment makes necessary in the areas of small farms or on plantations.

Cotton Production Costs in the Old South

Where the natural conditions are favorable the savings both in labor and power costs are large in the eastern Cotton-Belt, the change being from half-row mule equipment to two- or four-row tractor equipment. Mr. J. T. McAlester, Extension Agricultural Engineer at Clemens College, South Carolina, reports that cotton was produced on eight tractor-operated farms on which records were kept in 1929 under his direction, at a cost of 9.61 cents per pound. An average of 7.7 hours of tractor labor per acre was required on these farms.

Mr. J. O. Smith of the Delta Experiment Station located at Stoneville, Mississippi, reports the following variations in the cost of production of cotton on experimental plots with various types of equipment. These costs include the expense for all man labor, power, and machinery for the field work except chopping and picking.

Similar cost figures have been duplicated by the experience

of large numbers of farmers in all of the cotton-growing states. It requires approximately five hours of tractor work to produce an acre of cotton aside from chopping and picking where conditions are favorable, slightly more where the fields are small and the foul condition of the fields makes necessary more frequent cultivation. This seems a ridiculously small amount of time when compared with an average of five days labor per acre of cotton for the same operations with the one-mule equipment still commonly used in much of the old Cotton-Belt.

Effects of Mechanization of Cotton Farms

The possible effects of this impending revolution in the methods of cotton production afford an interesting field of speculation. Some effects are rather clearly apparent at this early stage in the

TABLE 3.—OPERATING COSTS PER ACRE OF COTTON AT THE DELTA EXPERIMENT STATION, STONEVILLE, MISSISSIPPI

Equipment	Power	Labor, power and machinery cost per acre
½ row	One mule	$14.20
1 row walking	Two mules	11.19
1 row riding	Two mules	10.78
2 row	Four mules	8.97
2 row	Tractor	6.78
4 row	Tractor	5.20

progress of the mechanization of cotton production. Just as in the case of wheat two generations ago, the increased use of machinery will likely have the effect of concentrating production on the areas best adapted to the efficient use of large-scale machinery. Man can not compete with a machine and maintain a satisfactory standard of living. The reallocation of the areas of cotton production is already apparent in many parts of the Cotton-Belt. In Oklahoma the center of cotton production has moved 125 miles westward in the past ten years. The 1930 Census reveals that the number of farms in the southeastern cotton counties in Oklahoma has declined 11 per cent while in the southwestern counties an increase amounting to 27 per cent in the number of farms has occurred during the past ten years. Eastern Oklahoma is an area of small farms where the cotton production methods are typical of the old South. Southwestern Oklahoma is typical of the new cotton country.

Another effect that is apparent with the coming of modern equipment into cotton production is the increase in the average

size of farm, increased investment per farm, and a reduction of the number of farmers engaged in cotton production. The average investment per farm in the area in southwest Oklahoma previously mentioned was slightly over $50,000. This is more than ten times the average investment in a typical cotton farm in the older cotton growing sections. These shifts in areas of production and in farm organization will not be completed in a year or a decade and will not be without complexing problems in social and economic adjustments. However, as I have attempted to point out, the introduction of modern power machinery is based upon sound economic principles and as such is positive and inexorable in its advent and progress.

Mechanical cotton pickers are still in the experimental stage. Should a scarcity of cheap labor occur there are mechanical pickers now sufficiently perfected to make their use practical. Further improvement of existing types or the invention of a new picker which is within the realm of possibility in the next few years would serve only to accentuate the effects on cotton production that the tractor is now exhibiting. A successful cotton harvester would further lower the costs of cotton production in the areas where the size of the farm and natural conditions were favorable. The general introduction of more machinery would likely speed up the shifts in cotton production by making it increasingly difficult for the small cotton farmer using primitive hand methods of production to compete successfully with machinery. This would be but a repetition of the history of the result when hand methods of production have come into competition with machine methods in other lines of production in the past. Under present conditions considerable cotton is sledded in years when cotton prices do not justify hand-picking. Most of the cotton now grown in the newer cotton areas in the Southwest is snapped, not picked. Recent improvements in ginning equipment, particularly the boll extractor, make this practice profitable.

The increased mechanization of agricultural production is an important factor in the decline in price of certain staple farm products in recent years. Modern machinery has made it possible to reduce the cost of production of the crops where such machinery can be used effectively. This lowering of the cost of production has had the effect of pushing production out on to lands that were formerly submarginal and unprofitable even at higher price levels. The increase in production in these newer areas of production without a corresponding reduction of pro-

duction in the older producing areas has resulted in an increase in the supply of the product and lower market prices. The effects of mechanization in bringing into production these new areas is by no means at an end, hence the resulting surpluses will continue for some time to exert a depressing effect on prices. The present low incomes of farmers in the Cotton-Belt is a factor tending to retard progress in the mechanization of cotton farms.

WHAT AGRICULTURAL PRODUCTS HAD WE BEST EXPORT?[1]

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A short answer to the question is: We should export those agricultural products which, sold in foreign markets, will return more net profit than substitute products sold on a domestic market basis. This is an economic axiom but it is often overlooked in discussing national agricultural problems. It is sometimes easier to formulate a general principle than to apply the principle to the problems that are presented to us. Definite measures of the profitableness of producing commodities for either the domestic or foreign market are lacking. Continually changing conditions make it difficult to forecast the profitableness of alternative products for foreign and domestic markets. Policies or plans must be formulated, however, upon the basis of available information and apparent tendencies. It is our purpose to consider present conditions and long-time tendencies with reference to the outlook for the production of and demand for the agricultural products of the United States in relation to exports.

Perhaps it would be in order first to consider whether or not the United States should export any agricultural products. In the discussions of agricultural surpluses in the past few years, the significance of exports has often been misrepresented. The agricultural depression was said to be due to surplus production. The surplus most easily identified was what we exported and, therefore, exports caused the depression. Many have overlooked the fact that we have had real economic surpluses of agricultural products—such as wool and sugar—of which we export nothing. Shifting from an export to a domestic market basis may make a material change in the price relations to the producing area but this is no guarantee of profitable production. It is axiomatic, of course, that we may be producing and selling at a great loss on the domestic market just as well as upon the foreign market.

One proposed solution of the surplus problem goes to the extreme of advocating duties or other restrictions sufficient to prevent imports of agricultural products, so that export producers may shift to production for the domestic market. In the past

[1] Paper read at the twenty-first annual meeting of the American Farm Economic Association, Cleveland, Ohio, December, 1930.

five years the value of the imports of agricultural products into the United States has averaged somewhat above the value of the agricultural exports. This may seem to indicate that such a shift could be made. But an analysis of the items entering into the imports shows this to be impracticable. Among these imports are large items that we produce only in very small volume, or not at all. The largest items are silk, coffee, and rubber. Add to these tea, chocolate, and a few other such small items and we find that in value more than one half of our average imports are not and cannot be economically produced in this country because natural conditions are not suitable for their production. If we are to continue to use these products in volume, we must buy them.

Some of our agricultural imports are by-products, and to produce our domestic requirements of these by-products would result in an exportable surplus of the primary products to which they are related. Cattle hides, for example, are merely by-products of meat production. Doubtless the United States could produce enough cattle to provide the hides used in this country, but what would we do with the beef? We would have to sell it at very low prices, probably both in the domestic and in the foreign markets. If we were to produce our wool requirements, including carpet wools, the result would probably be an exportable surplus of mutton and lamb. Consequently not much could be accomplished toward eliminating exports by undertaking to produce the imported articles which have become largely the by-products of major agricultural enterprises.

There are cases in which physical and market conditions would permit imports to be reduced or eliminated by increasing domestic production on areas taken from the production of exports. A good example of the possibility of doing this is to be found in the case of flaxseed. Wheat acreage can be shifted to flaxseed, but a shift sufficient to meet domestic requirements for flaxseed would make very little impression upon wheat production. A rough analysis of all such shifts that might be made indicates that probably not more than 15 million acres used in producing for export could be shifted to replace imports, and this would still leave at least 45 million acres producing for export. Furthermore in most cases it is not obvious that in the long run such shifts as could be made would increase net profits to producers.

Our rejoinder to any proposal to live at home and eliminate

the exportable surplus must be that it is neither practicable nor a solution of the much discussed agricultural surplus problem. Buy what you can buy cheaper than you can produce it, is an economic axiom which applies at this point.

Still another proposition is to eliminate exportable surpluses simply by contracting production to domestic requirements even where there are no more profitable alternative products. This proposition is supported by the argument that withdrawal to the domestic market basis would increase prices more than sufficiently to compensate for the reduction in the volume of the product to be marketed. In some cases probably a smaller production could be sold in the domestic markets for more money than is now being obtained for the entire production in domestic and foreign markets. But upon examination, this proposition is also found to be impracticable. The problem is how to obtain the reduction. The action of any one individual has very little effect upon the total. Under the competitive conditions now prevailing, no one is compensated for sacrifices made for the benefit of others and concerted action by all is impossible.

In the discussions of solutions for the surplus problem we meet another general proposition: that agriculture should retire from the export field because farmers cannot and should not try to compete with the peasant labor of Europe and Asia. This argument is of course superficial. The keenest competitors of the farmers of the United States are not the peasants of Europe but the farmers of Canada, Australia, and New Zealand who also have high standards of living and pay high wages for labor. Experience has demonstrated that the intelligent and educated farmers of the United States with their machines can easily compete with the peasant labor of Europe and Asia, just as many of the captains of industry in the United States compete with the exploiters of cheap labor in foreign countries, by larger scale and higher quality production.

In the last analysis, whether or not the farmers of the United States produce for export, and what they export, depend upon the available agricultural resources and their most profitable use. I mean to include in agricultural resources not only the land but also the farmers themselves with all their knowledge and equipment for agricultural production. The United States has a large share of the agricultural resources of the world and a smaller share of the world's population to be fed and clothed. The experience of the past few years indicates that many of our

farmers can compete successfully in foreign markets on the basis of both quality and quantity of production, even in the face of a tendency for world-wide surplus production.

The economy of specialization and large-scale production is applicable to agriculture as well as to industry. Cotton is by far the most important export commodity of the United States. This country produces about 62 per cent of the world crop outside of China. In the past five years 54 per cent of the production has been exported. The farmers of the South specialize in cotton. They can produce corn, hogs, and many other products; but just to the north is the corn-belt which is better suited to producing corn and hogs, and not cotton. Consequently many of the southern farmers find that they can buy most of their food and feed cheaper than they can produce what they need. Stated in another way, the cotton planter relieved of the necessity of producing his own feed and food can put all of his energies into cotton production and thus produce large quantities at a relatively low cost per pound. Doubtless many cotton farmers can advantageously supplement their income from cotton by producing some feed and food or other products for sale; but it is the economy of specialization that causes the South to continue the one-crop system of producing cotton, in the heart of the cotton-belt, in spite of campaigns for diversification. It is this specialization in production as well as the size of the cotton-belt that produces a large exportable surplus of cotton.

Although the future of the position of the United States as an exporter of cotton is not free of the prospect of severe competition from other countries, that position seems to be secure for the immediate future. Foreign production is increasing and the consumption of foreign growths by foreign countries is increasing faster than the consumption of American cotton. Suitable lands can be found in foreign countries sufficient to produce the world's requirements for cotton. But there is no immediate prospect of a very rapid extensive development of new lands in foreign countries.

Perhaps a word should be said about Russia's cotton production plans. That country plans a marked increase in production but her resources are limited and probably no more than sufficient to produce what that country will consume. That is, we may lose the Russian market for our cotton. In the meantime the westward expansion of the cotton-belt, together with new developments in the technique of production, is strengthening the

South for competition with the cheapest labor and the most fertile cotton-producing areas in other countries.

Another point favorable to the export of cotton is the fact that many of the most populous countries and largest consumers do not produce it. They want the raw materials for manufacture and have no interest to protect. An exception to this might develop through colonial preferences on the part of France and the British Empire, but this is not threatening for the immediate future.

Tobacco appears to be in a position similar to that of cotton. There are large areas suitable for highly specialized production. The United States produces about 40 per cent of the world's tobacco crop outside of Russia and China, and exports about 39 per cent of it unmanufactured. For many years this country has held a dominant position in the international trade in tobacco and that position does not seem to be threatened seriously for the future. The United Kingdom has resorted to preferential duties to encourage colonial production. This has developed more competition for some types but it has had no material effect upon the demand for flue-cured tobacco from the United States for the manufacture of cigarettes. The late war stimulated the demand for tobacco to be used in the form of cigarettes, and the United States seems to have profited most by this development, in foreign as well as in domestic markets. Not much headway has been made in Continental Europe against the homegrown, Turkish, and colonial tobaccos, but recently the Orient has become an important market for our cigarette tobacco without much competition from any source.

Specialization in wheat production on the frontier provides a surplus of wheat for export. Wheat production continues to expand on the Great Plains, and in the inter-mountain territory. New technique in production and new machines make it more profitable to produce wheat than to continue livestock grazing over large areas which had been considered not suitable for growing wheat. Continued expansion in some areas in the face of falling prices seems to indicate a cost of production so low that wheat may be profitable at very low prices, and more profitable than any other agricultural enterprise to which these resources could be devoted. In some older producing areas wheat fits into a crop rotation better than any other crop and contributes something to income even at relatively low prices. However, doubtless many farmers are still producing wheat while some substi-

tute would be more profitable, as many are slow to adjust to changing conditions. Would the elimination of all wheat production, for which a more profitable alternative could be found, eliminate the exportable surplus? Since we have exported 21 per cent of our production in addition to building up large stocks in the past five years in the face of falling prices, it seems likely that we are producing a real exportable surplus of wheat.

How much longer can we or ought we to stay in the wheat exporting game? We still have considerable areas on the Great Plains and farther west upon which wheat can be grown. With decreasing per capita consumption tending to offset the effect of increasing population, the domestic demand for wheat as food would be a long time catching up with present production. The prospect of continuing to export large quantities of wheat, therefore, depends primarily upon foreign competition and demand conditions. Such relatively low wheat prices as exist in foreign markets at the present time probably would tend to reduce production in the older agricultural areas more rapidly than the production of newer areas could expand with profit. The continuation of these prices might soon bring an end to exports excepting small quantities to countries which normally depend upon the United States for a considerable part, if not all, of their flour and bread supplies, but recovery from the present world-wide financial and business depression is likely to bring somewhat higher prices. Even though the world's supply of wheat is now large enough to hold wheat prices below the normal level of the past few years, the new normal level may not be low enough to cause a rapid reduction in the wheat crop of the United States.

The demand for wheat is increasing in some foreign countries, particularly in tropical countries and the Orient, while it is remaining about stationary or decreasing in some other countries. On the whole it appears that the foreign demand for wheat is increasing. The question is, will the foreign production of wheat increase more rapidly than the demand for it, and thus continue to reduce the normal wheat price level?

There are large areas suitable for wheat production in many foreign countries. Production is expanding in new areas in Canada, Australia, and Argentina, as well as in the United States. Russia is reorganizing for expanding wheat production. Tractors and combines, which have contributed much to the maintenance of production and expansion into new areas in the United States, are being shipped to these countries to be added to the

machines produced at home for wheat production. New scientific knowledge and technique are being used in these countries as well as in the United States. The best prospects for the development of new areas are in Canada and in Russia. During the next ten years expansion in these countries, with additions from some others, may continue to increase foreign production more rapidly than demand increases, and thus reduce the normal level of prices rapidly enough to cause some curtailment in exports from the United States. For the present, however, we seem to be in position to stay in the export game for many years, although the part we play in that game may be reduced to a minor rôle within the period of another generation.

Specialization in corn and hog production in the corn-belt provides an exportable surplus of pork and lard. The number of hogs in the United States is about equal to the number in all of Europe outside of Russia, and one third of the number in the world outside of Russia and China. This would seem to indicate that we are in a good position to compete with the rest of the world in hog production. About 30 per cent of our lard production is exported, but the exports of the meat of the hog have been reduced to about 4 per cent of production.

In the corn-belt we have large agricultural resources for the production of pork and lard, but in appraising the future of our export of these products we must consider other demands upon these resources. The growth of population within the country is increasing the demand for pork. The corn-belt is called upon to supply grain feed for many other parts of the country. The South requires corn for its work animals, the East for dairy and poultry production, and the West for cattle, sheep, and dairy and poultry production. The amount of grain feeding per animal unit within the country is increasing at a fairly rapid rate. This is due to a definite tendency to increase production per animal unit. Another significant fact is the tendency to increase the production of whole milk for market, and thus reduce the hog production ordinarily associated with the production of butter and cheese or beef. On the other hand, an expansion of hog production in northern Europe, particularly in Denmark and the Netherlands, associated with butter and cheese production, is lessening the foreign demand for pork. Consequently the exports, which are now less than in the period immediately preceding the war, may continue to dwindle until they practically disappear, and that within a comparatively short period.

The situation with respect to lard is somewhat different from that with respect to the meat of the hog. Lard exports are now larger than before the war. The increase in hog production in northern Europe apparently has had no effect upon the lard imports of the northern European countries. Hogs produced upon barley and by-product feeds together with the by-products of the dairy industry do not produce lard in volume. The competition for lard is to be expected mostly from vegetable fats and oils, rather than from hog production outside of the corn-belt. The future competition in the field of fats and oils is quite uncertain. If lard holds its export position, it must do so on the basis of volume production at low cost, to be sold in competition with large volumes of vegetable oils produced in the tropics.

In discussing cotton, tobacco, wheat, and hogs, I have dealt with the products that constitute the bulk of our exports. The growth of domestic demand, on the one hand, and increasing foreign competition, on the other, have practically eliminated the exportable surpluses of beef and dairy production. The exportation of feed grains has likewise disappeared excepting for the shipments of small quantities to neighboring countries and larger quantities to other countries in large crop seasons. Barley exports are still of some significance. In part, the barley shipments consist of exports from areas in California which produce barleys having certain qualities desired for brewing in northern Europe. Only small quantities are being shipped to Europe for feed and this barley is meeting with increasing competition from many other barley producing countries. Apparently barley is increasing in favor in the United States as a feed grain, and doubtless increasing demand for feed grains will absorb the exportable surplus of feed barley in the not very distant future.

Suitable areas for specialized production result in exportable surpluses of many minor crops. Rice is one example. Rice has no strong competitor in the areas most suitable for its production within the United States. Since the domestic demand for rice is limited, a small production exceeds domestic requirements. Apparently producers in California and in the South can successfully meet foreign competition in some foreign markets with the comparatively small surpluses produced.

Specialization in both quantity and quality production has developed an export surplus of several fruits. The most important is apples. The investigations of Edwin Smith, while

he was a fruit specialist representing the Department of Agriculture in foreign countries, indicate very clearly that many European countries could produce all the apples that they consume, and that the imports of those which could not meet their own requirements could be obtained from surplus producing European countries. The natural resources are available in several countries but the peasants living in areas suitable for producing large quantities of high-quality apples lack the initiative and foresight necessary to plan and develop the production of large volumes of high-quality apples for European industrial cities. In some cases failure to use the available natural resources for apple production may be due to the fact that the lands have greater value for other production; but, for the most part, it is probably due more to lack of organization or the failure to realize the possibilities for profit in apple production. As long as this situation continues, producers in the United States can plan to produce apples for export.

The production of oranges and grapefruit for export illustrates another situation. Production highly concentrated in a few states exceeds domestic requirements. Comparatively cheap transportation makes Canada a natural market for these products. Efficiency in production and in marketing also enables producers of these products to place them in northern Europe in competition with the products from other sources.

In many other cases comparatively small areas, which are not very well suited to the production of a large variety of products, may be suited to the intensive production of a single product or a small number of products. In any case in which specialization in a product adapted to the area results in supplies beyond domestic requirements, we have a product which we had best export if we can fine foreign markets that will pay prices yielding net gains greater than could be obtained by supplying only the domestic market. Initiative and resourcefulness often find such markets. The fullest utilization of the agricultural resources of the country requires us to make the necessary effort in any case in which there is a prospect for increasing profits by production for export.

In estimating the foreign competition and the demand in foreign markets for agricultural products, we must consider the policies of foreign countries with reference to promoting production and restricting imports. The pessimist can easily find the basis for arguing that our export markets are closing up in our face.

The United Kingdom, our most important market, has invoked imperial preferences on some commodities and a general policy of imperial preference is under consideration. The United Kingdom could obtain a very large share of her needed supplies of food and clothing from her colonies and dominions. Her greatest difficulty would be in obtaining cotton and tobacco. Many of the continental European deficit countries are raising tariff barriers and resorting to other methods of restricting imports. Germany is making every possible effort to protect her wheat producers and make a domestic market for her rye by excluding foreign wheat in so far as it is possible for her to do so. Italy is making every possible effort to become self-sufficient in agricultural products. The Balkan countries and Poland are trying to make a deal with countries to the west for an advantageous exchange of agricultural products for manufactured goods, to our disadvantage. Russia threatens to flood our European markets with wheat.

Dr. Nourse, writing in 1923, presents a gloomy summary of the possibilities of developments in this direction. He says that in such a process of development the United States "falls to a position of small importance as an exporter of food to European markets, the tendency being toward flour for the tropics and the Orient rather than wheat for Liverpool and Hamburg; toward pork products rather than grain; and toward canned and dried fruits and vegetables, and possibly canned and powdered milk for the Orient and the tropics; and probably more rice to Japan or even to China or India in times of crop failure."[2] This quotation does not represent exactly what Dr. Nourse then considered to be the outlook for agricultural exports from the United States. Recent developments, brought on in part by the world-wide depression, however, are in line with what he in 1923 considered to be a possible development.

Recovery from the present depression—when it comes—will clear away some of the pessimism and probably will lessen some of the obstacles to our exports. It is difficult to persuade the British consumer that he should pay the costs of imperial preference, particularly if the increase in cost will jeopardize his position as an industrial producer for markets beyond the realm of the empire. Continental European food deficit countries will also hesitate to continue a policy of restricted imports to the

[2] E. G. Nourse. American Agriculture and the European Market, p. 234.

disadvantage of their industrial workers. Even Germany may yield in the end upon this point. In spite of the heroic efforts of Italy to become self-sufficient in food production, she must still import and must bear in mind the interests of her industrial as well as her agricultural workers. In Europe outside of Russia agricultural production has barely recovered from the effects of the war, with few exceptions. The pre-war tendencies for several European countries to industrialize at the expense of agriculture may continue with readjustments from special nationalistic measures resulting from war psychology and the passing of stringent financial depression.

The situation in Russia is different. Should the Russian Government succeed in doing what it is trying to do, Russia will become a great agricultural producer. However, the Russian population is increasing rapidly and special efforts are being made to develop industrial centers which will consume the products of agriculture. Should the Russian program succeed, that country would be producing by 1933 about 8 million bales of cotton and consuming it all. The area of grain crops in cultivation would be increased about 23 per cent and yields per acre would be increased about 25 per cent, thus increasing the production about 50 per cent, or more, over what it was in 1928. The carrying out of this program would undoubtedly provide substantial exportable surpluses of several agricultural products. With an increased population being fed better than it has been in the past, however, Russia may never have again an exportable surplus of wheat and rye equal to the quantities exported before the war.

On the other hand we must not forget the Orient which is undergoing an industrial and agricultural revolution. To date this has resulted in increased takings of agricultural products from the United States and other foreign countries.

Thus we can build up the basis for a more optimistic view of the long-time prospects for exporting agricultural products from the United States than that which appears on the surface at the present time.

In conclusion I want to return to my original proposition, that we had best export those agricultural products which will return greater net profits than can be obtained from substitute production to be sold on domestic markets. There is no special merit in producing for the domestic market over the foreign market unless the individual producer can thereby add to his net profits.

Reviewing both domestic and foreign demand prospects, it appears that the principal exports from the United States for some time will be cotton, tobacco, and wheat. Domestic market demand may soon be sufficient to absorb the production of feed grains and livestock without leaving an exportable surplus of these products except possibly lard. Specialization in quantity and quality production may continue for a long time to provide exportable surpluses of many other commodities including many fruits.

THE PLACE OF FARM ACCOUNTING IN RESEARCH[1]

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Most of the research in the field of farm management involves the use of either the farm account or the survey method. Farm accounting is the older of the two methods but its development has been somewhat slower than that of the survey. Prior to 1920 its use was restricted to but a few institutions and only meager results were available in published form. Since that time, however, it has grown rapidly until now more than two-thirds of the institutions conducting research in the farm management field are making some use of farm accounts. During the past three years, the major portion of the published results of farm management research has been based wholly or in part on data secured through farm account records. In view of this rapidly growing importance of farm accounting, we may well give some attention to the various types of accounting work and their place in the farm management research program.

In any study of individual farm organizations, it is difficult to draw a sharp line between research and extension. This is particularly true in the farm accounting field. The farmer keeping accounts demands some interpretation of his records. The research worker finds in this demand an excellent opportunity to test out the validity of his analysis of the accounting records on the farms on which they were obtained. In actual practice it is impossible clearly to differentiate between the research and extension phrases of an accounting study. If, therefore, I fail to do so in this discussion, I trust the following speaker will pardon my trespassing on his territory.

I wish to divide farm accounts, for the purpose of this discussion, into the following three classes:

1. Detailed farm accounts covering the entire farm business
2. Financial accounts
3. Enterprise accounts

This classification is admittedly rough but I believe it will serve a useful purpose in this discussion even though the three classes cannot be sharply differentiated in actual practice.

The detailed farm account, as the term is used here, includes

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[1] Paper read at the twenty-first annual meeting of the American Farm Economic Association at Cleveland, Ohio, December, 1930. Paper No. 991, of the Journal Series of the Minnesota Agricultural Experiment Station.

inventories, records of receipts and expenditures, feed records, labor reports, production records, and more or less information on farm practices. In short, it includes a complete detailed record of all elements, both physical and financial, that comprise the input and output of the farm as a whole and of the several enterprises that make up the farm business. This type of study is commonly referred to as "cost accounting" but I prefer the more general term of "detailed accounting." Cost accounting in the minds of many people implies the allocation of all items of both direct and indirect cost to specific units of production and their expression in terms of monetary costs per unit. This monetary cost computation is not, in my opinion, an essential feature of this type of accounting. The primary purpose of detailed accounting is to secure basic data regarding factors of cost in farm production, farm practices, labor distribution, the utilization of farm resources, and the enterprise inter-relationships of the farm business. No other one type of study can supply all of this information for any given farm unit. No other method of research will supply a complete picture of labor distribution and utilization for a given farm. The following quotation from a paper read by Dr. Andrew Boss before the International Conference of Agricultural Economists at Cornell University the past summer gives a clear statement of the function of detailed accounting studies: "they should serve as a source of (1) basic unit data covering all phases of the farm business that will serve in determining what the returns from the farm business as a whole are, with an approximate determination of the sources of profit; (2) results that may be reasonably expected from different enterprise combinations; (3) approximate estimates of consequences likely to result from changes in the type of organization in an area or region; (4) the most profitable enterprise or the enterprises making the largest returns on the resources used; (5) in some cases the most effective and profitable farm practices within the enterprise; (6) always a large number of illustrations of organizations and practices that make for efficiency." Many of the basic measures and standards secured through detailed accounts are useful in supplementing the results of other types of research. An example of this is the productive work unit based on detailed accounting studies which is so generally used in analyzing and expressing the results of both the survey and the financial accounting studies.

There are many individual items among the research data

secured by the detailed accounting method that could be secured with reasonable accuracy and much less expense through some other type of study but no other method will give the complete picture of the entire farm business that this type affords. The important factor limiting the use of this method of research is the high cost per farm. A survey conducted the past summer by Dr. J. F. Harriott of Cornell University reveals an average cost of $210 per farm for the ten states which have done most of the work in this field. This is the average cost over a period of more than 25 years. Costs for these same institutions at the present time average $227 per farm. Costs vary widely among different institutions because of differences in organization and in amount of information secured. Five institutions report costs of $300 or more per farm and four, costs between $200 and $300. This high cost makes it necessary to limit detailed accounting to a comparatively small number of farms. The most effective use of funds is secured by selecting a small number of farms representative of an important type of farming in the state. By limiting the work to not over three years in the same area, it is possible through a rotation of the work about the state to cover the important types of farming over a period of years. Even with this method a fairly generous research budget is necessary if detailed accounting is to be most effectively used since the results of accounting are most valuable when used to complement and supplement other types of farm management research. Seldom, if ever, is an institution justified in putting all of its research funds in this type of work alone. Some 30 states have done some detailed accounting work either alone or in cooperation with the Bureau of Agricultural Economics but more than 80 per cent of this work has been done by 10 states, which, according to the survey conducted by this association in cooperation with the Social Science Research Council, had average expenditures for farm management research of $11,500 in 1926. Of the 10 institutions having the largest budgets for farm management research, 80 per cent were doing detailed accounting work, but of the 10 having the smallest budgets, only 20 per cent were attempting this type of work. Some detailed records are an essential part of any program of farm management research but funds available determine the possible extent of their use.

The second class of farm accounts I wish to consider is the financial account. The projects I would include in this group present quite a range in amount of detail involved. They vary

from simple cash and inventory records to systems of accounting including all the information supplied by detailed accounts except complete labor records. Some are kept by farmers without any supervision whereas others are supervised quite as carefully as some of the detailed route studies. The survey made in 1927 in cooperation with the Social Science Research Council revealed only four states reporting research projects in this class. In the majority of the states, financial accounts have been handled exclusively as an extension activity. Farm management investigators are beginning to appreciate the value of financial accounts as a source of research data. There has been considerable increase in the use of research funds for this work since 1927 but in most, if not all cases, the work has been supported jointly by extension and research funds. In some cases, individual farmers and farmers' organizations have contributed funds to the work. The Illinois Farm Bureau Farm Management Service is one of the best examples of this type of work. The cost per farm is much less than that of detailed accounts—probably not over 15 per cent or 20 per cent as much even where a field man is employed and considerable supplementary information is obtained. This lower cost makes it possible to obtain a sufficient number of records in any area for a satisfactory statistical analysis of the results. As a means of securing farm earnings data it is more expensive than the farm business analysis survey. The greater accuracy of the individual records alone would not offset this higher cost, but the possibilities of securing in addition supplementary data on feed costs, farm practices, crop and livestock production, and similar information as well as the extension possibilities of the work may make possible a very effective use of funds in this type of work.

The records of a financial accounting project covering a group of 150 to 200 farms of a given type, especially if supplemented with the results of detailed accounting make possible a comprehensive analysis of the factors of success in this type of farming and furnishes the basis for suggesting adjustments in farm organizations in line with changing economic conditions. The next few years will, in my opinion, bring a marked expansion in this type of work. Since the extension phases of financial accounting are of at least equal importance with the research aspect, I will leave further discussion of financial accounts to the next speaker.

The third type of farm accounting research is the enterprise account. Thirteen states reported research projects in this field

in 1927. Undoubtedly there has been considerable expansion since that time. Like the financial account much enterprise account work has been done by extension workers. One important function of the enterprise account is that of supplementing the detailed accounting study. New enterprises, new equipment, and new methods of production are introduced from time to time. Basic data from the detailed studies may not cover these new introductions or some items may become obsolete because of changes in farm practices. By the use of enterprise accounts covering the introductions or changes, the data from the detailed account can be supplemented or brought up to date without the expense of repeating the original study. This may also be done by the survey method. Which method is the better depends on the nature of the problem. Often a combination of the two is most economical. When only gross factors of cost are desired the survey will usually supply them at a lower cost. When details of expenditure, labor distributions, and enterprise inter-relations are desired, a daily account record may be the only satisfactory source of information. As an example of such a problem, I might cite a combine harvester study in Minnesota. The survey method was used to get general information regarding the cost of combines, operating expenses, performance, and similar information. Daily account records were used to get the details of cost as to operations and kinds of grain threshed and especially to secure a complete picture of time distribution of combine operations. The latter is particularly important in studying the adaptability of the combine to humid regions. The data on combine costs and performance from these two sources was used in conjunction with data on binder-thresher costs previously obtained by detailed accounts to determine the adaptability of the combine to the region studied.

Another use of enterprise accounts is to study practices within an enterprise. It is possible to get more detail regarding a single enterprise in an enterprise study than would be possible in a detailed study covering the entire business. The enterprise study is especially adapted to a study of a dominant enterprise within the business and may even replace the detailed account for that purpose. There are types of farming where some one enterprise may be practically the sole source of income. In these cases, an enterprise study will supply practically all the information needed to analyze the business. Highly specialized enterprises also offer a field for this type of study. The extensive use of the

enterprise study in California is doubtless due in a large measure to the high degree of specialization practiced on farms there.

Thus far we have been considering specific types of farm accounting. There are certain characteristics of accounting as a method of research that merit consideration. In general, it costs more to secure a given set of facts about the farm business by the accounting method than by the survey. To justify the use of funds for accounting work, it must have some advantages or adaptations not possessed by less costly methods of study. Some of these advantages are as follows:

1. It is possible to get more comprehensive data regarding the farm organization than by any other one method.

2. It is usually possible to secure greater accuracy and more detail in the data secured.

3. There are certain types of data such as labor distribution and utilization that cannot be secured except through a daily record.

4. It is possible to present the results of accounting studies more promptly at the end of the production period than can be done in case of studies not initiated till the end of the period. By keeping current tabulations up to date, results can be available in time to serve as a guide in planning the next season's operations.

5. Accounting studies have a special advantage from an extension standpoint in addition to their research value. Farmers may not only be taught how to keep and analyze farm records through an accounting project but may be led to adopt a more businesslike attitude toward their farming operations at the same time that they are supplying research data. For this reason a more general use of extension funds in supporting farm accounting projects initiated by research departments, would, in my opinion, not only be justifiable but also would result in an especially effective use of these funds.

The second point listed, that of accuracy, deserves special consideration. The chief advantage of farm accounts in accuracy lies not only in the fact that the data are recorded while fresh in the farmer's memory but also in that they may be checked by a field man and in many cases by an office clerk as well. The timely discovery of errors and their prompt submission to the farmer for correction eliminates most inaccuracies. Obviously any method of study involving only one contact with the farmer and that at a considerable period after the occurrence of the opera-

tions recorded, even if carefully checked, will include some discrepancies. However, this matter of accuracy may easily be overemphasized. At best it is more or less relative. Full accuracy of detail is not only prohibitively expensive but in many cases practically impossible. For many purposes a large number of records of only fair accuracy may be much more valuable than the small number of carefully checked accounts that could be secured at the same cost.

One disadvantage of accounting studies, particularly as compared with the survey, is the fact that accounts must be started without knowing the normality of the situation to be studied. Weather conditions, ravages of insects or disease or violent changes in economic conditions may cause such an abnormal situation that the results of the study will have limited value as standards or basic data. A survey, on the other hand, is not started until the production period is ended and conditions for the particular season known. This disadvantage is, of course, offset in part by the promptness with which accounting results are available at the end of the production period.

Another characteristic of farm accounting studies is the difficulty, if not impossibility, of obtaining through them a so-called "average" picture of agriculture. Not only is the better farmer more likely to be interested in keeping farm accounts but he is likely to keep better records. This naturally leads to his selection for the work. Even if farmers of only ordinary success are selected, they are not likely to remain in that class. The lessons from their records point so obviously to profitable changes in their business that even in the absence of definite extension work they are more or less unconsciously improving their method more rapidly than they would otherwise do. Farm accounts, therefore, tend to bring out the results of successful practices and profitable organizations. They tend to show the possibilities of agriculture and to furnish standards rather than merely to portray the average, median, or modal condition.

Farm accounts supply, sometimes merely as a by-product, a considerable amount of data of use to other research workers. The student of farm credit, farm taxation, or farm price problems, the sociologist, the home economics worker, as well as investigators in the production fields draw much useful information from accounting studies. These data can often be secured at little or no additional expense and may be a factor of some importance in the selection of the accounting method of research.

This discussion would hardly be complete without some reference to the place of accounts in farm management research in Europe. Farm accounts have long played an important rôle in many continental countries. The financial account has been used very extensively. In Germany alone 56,000 farmers were keeping financial accounts in 1926. However, most of the farm account records have either been kept by private service organizations on a commercial basis rather than by public research agencies or if directed by public agencies have been used for political purposes, especially in connection with income tax determinations. The detailed accounting method was first used in Great Britain in 1913. The Agricultural Economics Research Institute at Oxford University initiated some very detailed cost accounting studies in which the final results were expressed in monetary terms. The Agricultural Costings Committee, 1919-21, gave added impetus to this type of work. The great expense involved in this work as well as the limited significance of the monetary cost data secured has led to its discontinuance. At present, the financial account is used by most British research workers in farm management in general farm organization studies. Little use has been made of enterprise accounts. For enterprise studies as well as for some farm business analysis the survey method is used at the present time.

In conclusion, I want to state that the place of farm accounting in the research program of any institution depends on a number of factors. Important among these are the amount of funds available, the nature of the farm management problems of the state, the possibilities of combining various types of research, and the opportunities for cooperation with extension workers or for the development of service features that will draw direct financial support from the clientele served. There is no one best way to conduct farm management research nor is there one best type of farm accounting investigation. Whether or not I have presented the characteristics of farm accounting in such a way as to aid the investigator in planning his research program, I hope that, at least, I have stimulated thought and discussion that will contribute to that end.

THE PLACE OF FARM ACCOUNTING IN EXTENSION[1]

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Probably no other single phase of extension work in the Agricultural Economics field has received as much emphasis in the past as farm accounting. With the first efforts in agricultural extension, the importance of this work became apparent, and leaders in the field recognized that the relationship of different projects and the organization of the entire farm business was one of the most important considerations in any program of agricultural improvement. During the last generation, farming in our leading agricultural sections, had changed from a largely self-sufficing industry where the activity of the family had been directed chiefly toward supplying material for the household and preparing land for future production, to a strictly business enterprise. Farmers then began to produce those things which could be sold most advantageously and to depend upon other industries for the supplies which were necessary for the farm business and the household. With this change came the questions of what crops to produce, how much of each, numbers of livestock, amount of machinery, labor distribution, and other complicated problems of farm organization. Any effort of agricultural extension workers toward the improvement of methods in one specific enterprise was not complete without a consideration of this problem for the entire farm business.

The most logical means of studying the farm business appeared to be through some kind of farm records and although many changes have been made in methods of securing these records, no more desirable means of studying this phase of the farmer's problem has ever been developed. During the first few years of agricultural extension work, farm organization studies were based largely on figures secured through farm management surveys. These survey records served their purpose well at that time but lacked many of the most essential characteristics which are now causing the advancement of farm accounting work. Immediately after the organization of farm management extension work in a few states, effort was directed toward the development of farm accounting work where farmers would keep a farm business record on their own individual farms. Because of the

[1] Paper read at the twenty-first annual meeting of the American Farm Economic Association, Cleveland, Ohio, December, 1930.

amount of effort required of a farmer in this work and because of the lack of previous knowledge or experience along this line, progress was slow. However, during the last few years the farm accounting project has advanced quite rapidly and is now showing growth in almost every state. Last year more than a thousand farm account records were summarized in several of the leading agricultural states with more than double this number in the state of Illinois alone. Although there are slight variations in methods, answers to a questionnaire sent to different states indicate that practically the same objectives and uses of the farm accounting projects are employed in all states.

One of the objectives of farm accounting work, but by no means the only one, is the assistance which it offers to the individual farmer. A complete analysis of the farm business gives an invaluable assistance in planning the operations for future years. A knowledge of the strong and weak points of his business, together with a comparison of his efficiency factors with those of other successful farmers enables a farmer to pick out definitely the factors which influenced his income. Not only is he able to find these "leaks" in his farm business, but also, through a summary of these records, to learn what practices proved to be more successful on other farms. Farm management extension workers come in contact with numerous cases where individual farmers have made desirable changes and increased their own incomes as a result of the analysis of their own farm account records. In Franklin County, Ohio, five farmers completed farm account records in 1922, and these five men alone attended the summarizing school at the end of that year where they summarized and analyzed their records. These same five farmers have kept accounts continuously since that time and their incomes during the last few years have averaged nearly three times as large as during the first years.

In another county, a letter was sent to some of the men who have been keeping farm account records for several years asking the question, "What changes have you made in your farm business which have been the direct result of your farm account analysis?" Every man to whom the letter was sent replied. One man stated: "Through the farm record analysis I found that my livestock operations were losing money, especially a breeding herd of shorthorn cattle. These have been replaced by a small herd of registered Jerseys which have proven more profitable in this section. I increased my breeding herd and fed out more

pigs. Four years ago I received 68 cents for each dollar's worth of feed fed but last year received $2.18."

Another man stated: "The farm record analysis showed that my overhead was too heavy. I had too many horses and too much machinery for the amount of crops I was raising. I am now raising more crops but through better organization have been able to reduce my hired labor expense about $200. Being able to compare our record with others helps to locate the profitable and unprofitable practices. The better records set a standard which has a cash value that is hard to estimate. I found that my farm was run more smoothly when my work was planned ahead in a businesslike way and a larger business done with less hired labor expense. Farm records also helped me to realize how much I was making on the farm as compared with other business and that the old farm is not so bad."

Numerous examples of the benefits which individual farmers have secured through farm accounts can be found in any state where the work has been in progress for any length of time but this is so generally accepted that it needs no further discussion.

There is another very definite place of farm accounting in the extension program, other than the assistance to the individual farmer, which is sometimes not realized by those not in direct contact with the work. This is the basis for the county extension program and the assistance to other projects being carried on in the county. The need for more desirable information upon which to build our county extension programs has long been realized. Too often our county extension programs and the amount of emphasis placed on different projects during a certain year have been influenced by the price of some particular commodity at that time or by the desires of a few or even one individual. Figures on enrollment in boys' and girls' club work in Ohio show a rather noticeable tendency for pig club enrollment to increase following a year of high hog prices and to decrease when hog prices are low. Of course the main objective in this case is not monetary gains but it does show the tendency for extension activities to be influenced by temporary factors. Where a group of farm accounting records have been kept and a group summary made for the county or district over a period of years, a more definite basis of selecting the enterprise or practice which needs emphasis is available. An analysis of this type shows the sources of income, the type of farming, and the general organization of the more successful farms in that county.

Changing economic conditions cause a constant change in the most desirable type of farming in many communities. Good roads, together with improvements in refrigeration and transportation methods, are causing a very definite shift in the whole-milk producing area of Ohio. These improvements are allowing farmers in the feed surplus area of northwestern Ohio to offer very keen competition to the producers in northeastern Ohio who previously depended upon their proximity to the large consuming centers to offset the high feed costs. Improved machinery adapted to certain regions but not to others is having the same influence so that the most desirable type of farming for any locality may be constantly changing. The facts shown in a farm account summary of a group of from 30 to 50 farm account records give the best possible guide regarding the advisability of such changes. An analysis of the organization and practices followed by the more successful men gives a basis for the action of other less successful men. This is not overlooking the fact that one very rarely finds a farm which excels in all different efficiency factors. There is plenty of opportunity for improvement in the organization of even the most efficient farms by changing one enterprise. The farm account analysis offers more opportunity for this individual than any other type of study of the farm business.

Answers to a question recently sent to several county agents regarding the value of the farm accounting project in their counties showed conclusively that value to the individual farmer was considered as only a small part of the total value to the extension work in the county. One answer stated: "Results of the farm accounting analysis several years ago showed the importance of livestock instead of grain farming in this county. The results of these summaries have been the basis for our livestock extension programs for the last four years."

Another agent reported: "It is easy to talk about balanced rations, quality of livestock, good crop yields, and soil improvement, but it is hard to get any action unless we have specific information upon which to base our discussions and definite proof that such practices are profitable. Although the most direct benefit from the farm accounting program in our county comes to the record keepers themselves, we use it in our extension program as a guide to all extension activities. I believe I can conscientiously say that we use the results of our farm accounting work as an aid in every extension project in this county."

Another agent stated: "The 'service' to individual farmers is only a small part of the value of the farm account work in this county, although this together with the spread to neighbors would justify the efforts. Our county farm account summary is discussed thoroughly each year with our county executive committee as a basis for our county program. It is also discussed with our township leaders and used to support all projects. These reports over the last eight years have given a definite indication of the importance which should be given to different projects. The results of the 1929 account records in this county were the chief reasons for the greater emphasis which we have placed on certain phases of the livestock efficiency program this year."

It is generally agreed that the extent to which the results of the farm accounting project are used as a basis for extension programs or as an aid to other projects depends very largely upon the interest of the county agent but in the final analysis I believe this rests upon the farm management specialist. There is danger of becoming so absorbed in the collection of records and tabulation of results that the importance of keeping farmers and county agents familiar with the results and the methods employed in securing them is neglected.

Maintaining and increasing the interest of county extension agents in farm accounting work depends upon giving them usable information which they need to strengthen their programs of work. Farm accounting does not find new practices but it gives facts and figures on farms in the same county which are of great assistance in securing action. Proof that certain things are advisable is sometimes easy, but changes in practices are important rather than the knowledge alone. County workers in Ohio who have made the most efficient use of farm accounting material in the application to other projects are the ones who have actually assisted in summarizing the records and preparing the group reports. Many agents have had little farm management training except that which has been received in their work, and a knowledge of the principles of farm organization and the interrelationship of different farm enterprises in the farm organization scheme are of great assistance to them in analyzing farmers' problems. Not everyone who has a good return from chickens or cows should increase the number which he keeps, as very much will depend upon the effect of such a change upon the rest of the farm business. There is some danger of commodity specialists

overlooking this fact, and an understanding by the county agent of the effect of advocated practices on the results of the entire farm business is important. Farm account records act as a balance wheel to the thinking of many of the leading individuals of the community. These individuals are often cooperators or even leaders in other projects and an understanding of these principles by them is essential. The action of a community is often greatly influenced by the ideas of one or a very few individuals. Straight thinking by the community leaders is one of the greatest assets to the county agents' work and to the entire extension program.

During the last four or five years a very rapid development has taken place in extension work along the line of including economic and outlook information. There is a danger that farmers or even extension workers may be misled by outlook information unless it is closely correlated with farm organization and farm management facts. Suggested changes in production based on the outlook for a specific commodity must be interpreted in the light of good farm management practices for that particular community and I know of no better way to learn these practices and have proof for them than through farm accounting work. During the last six years 983 economic situation meetings on some specific commodity have been held in Ohio at which economic background information and factors affecting price changes as well as the present situation and outlook for this commodity have been discussed. We feel that this work is only supplementary to good farm organization practices. Correlation with the summarized results of several thousand farm account records which have been kept in various parts of the state has been one of the most valuable parts of the outlook program in this state. The farm accounting and farm management program has been strengthened by the economic information which has been made available. Also the uses and application of the outlook information has been quite dependent upon the farm organization information available through farm account records and summaries. In counties where the farm accounting project has been most successful the most effective outlook work has been done. In Darke County, Ohio, about 250 farm account records have been summarized during the past four years. This section is in the heart of the Miami Valley cigar tobacco district. However, most of the tobacco is produced as part of a general farm organization and not on specialized farms. Acreage of this crop varies greatly from year to year depending largely on the price re-

ceived during the last year or two. Rather definite and quite extreme cycles in the production and price of this type of tobacco have been experienced in the past. Since this type of tobacco is produced in only two other areas, and since at least a year intervenes between the production and the entrance into trade channels, a rather definite outlook can be secured. A comparison of account records on tobacco farms with others in that county must give particular attention to the position in the tobacco price cycle and the outlook. Also any information on the tobacco situation or outlook must pay particular attention to the relationship of this enterprise to the rest of the farm business. If the acreage is reduced, some other part of the business must bear the overhead expense of the special equipments and buildings. In a county such as this with both outlook and farm organization information available a more definite application of these projects is possible.

Another important place of farm accounting in extension is the assistance which it offers to other commodity specialists. The analysis of farm account records often shows the particular practice which should be emphasized by other subject matter specialists as well as the extent to which they should go in advocating a certain project in the light of the effect on the entire farm business. Farm account records in two counties in the fine wool section of southeastern Ohio over a five-year period showed the value of keeping breeding flocks and raising a large number of lambs per 100 sheep instead of the still common practice of keeping wether flocks for wool only. The animal husbandry specialist working in that section has developed a project on this practice and much of the information used by himself and the county agents in developing this program has come from those farm account records.

Less than a year ago a poultry specialist of the extension service came into my office and described a specialized poultry farm which was in trouble. He said that he could not see why this man did not make a profit as he did everything that the poultry department advocated. He was a good feeder, culled his flock, and received a good average egg production per hen, but his records at the end of the year showed a loss. The specialist stated, "If this man who does everything we advocate can't make money out of chickens we must be all wrong in encouraging people to keep poultry." An analysis of the records showed that this farm started the poultry year with good birds in the laying flock and

with the buildings, equipment, and labor quite fully utilized. However, as soon as the production in certain houses declined the theory that it does not pay to keep an unprofitable bird was followed and the flock rigidly culled. As a result of this policy at the end of four months the equipment, buildings, and labor capable of handling 8,000 birds was being borne by less than 4,000 and by the end of six months each bird was being charged with overhead expenses which had been borne by three birds at the beginning of the year. The difficulty in this case could be traced to a lack of the general farm organization point of view and lack of knowledge of the extent to which one specific practice could be carried without affecting the income from the entire business.

Only during the last few years have there been sufficient farm records in most states to furnish county extension agents and other specialists with this type of information. The use which will be made of this material will depend largely upon how far the farm accounting studies go in proving that certain practices are profitable. Each year a larger number of the farm management and economic information meetings in Ohio are being held in cooperation with other subject matter specialists. A combined hog outlook and swine sanitation meeting is an example. In these meetings the farm management specialist has presented the hog situation and outlook and this has been correlated with the farm organization program through the use of figures from actual farm records in that locality. The swine specialist follows and invariably begins with the farm account figures showing the relation between pigs per sow or some other factor and farm income. The same is being done by other specialists.

I believe it is now time for us to cease attempting to separate our lines of work in extension but to exert our efforts toward bringing them together. We are just beginning to utilize the broader phases of the farm accounting project, especially the uses in the county extension program and as an aid in developing the projects of other specialists. No other method of securing figures or analyzing the farm management problems carries the local proof, the local interest, and the local confidence which are found in the results of the farm accounting work. Since these features are absolutely essential in the uses of farm accounting material in the development of other projects, I feel that the farm accounting work has an extremely important place in future extension work.

THE FARM BUDGET[1]

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Business and industry are now making plans to meet a coming change in the business cycle. Many are also making adjustments to meet a probable long-time economic status somewhat unlike the one we have just passed through. Farming is confronted with the same changing economic situation, both from the short-time and long-time viewpoint. To meet it intelligently a thorough analysis of the farm organization plan and its income is important. This should be followed by making plans to meet the forthcoming situations as accurately as they can be forecasted within human limitations. Such a procedure would offer possibilities of better returns from the farm.

There never was a time of greater need for planning farm operations in advance than now. Economic changes are more rapid and relationships more widespread than ever before. Power and machinery, human tastes and habits, world conditions, political and economic, international trade, transportation changes, and many other factors all point to needed and constant readjustment in our farm management plans if success is to be attained. Any encouragement that can be given to farmers to plan ahead in more or less detail is a service to better agriculture.

A farm budget is a plan which shows the probable production, receipts, expenses, and net income from a given combination of crops and livestock with estimated yields, production and prices. It shows a man where he is headed and what his probable income will be for his year's work. This should take place before he has even thought of overhauling the tractor or conditioning his horses for the spring's work. Maybe there is a weak spot in the organization of the farm that will show up when it is spread out on paper. The budget is a forward looking thing. It seeks to correct mistakes before they are made and to arrive at the most profitable combination of crops and livestock for a given farm. It anticipates future prices and economic changes likely to have influence at the time of marketing the products of the farm.

It must be recognized, of course, that budgeting or planning in advance is not new and that most farmers make some sort of plans of their business in advance, mental or written, complete

[1] Paper read at the twenty-first annual meeting of the American Farm Economic Association, Cleveland, Ohio, December, 1930.

or fragmentary. In promoting budgeting among farmers, then, we are *not* introducing something new. We are merely trying to improve upon an old practice.

Budgets obtained from actual farms can, without a doubt, be used to good advantage in illustrating application of outlook material to specific farm problems and in arousing interest of farmers in the keeping of farm accounts. In this capacity, farm budgets are valuable in connection with outlook meetings and farm account schools. The value of the budget to the farmers in these cases is indirect. Our discussion will deal largely with the possibilities of making the budget directly useful to South Dakota farmers in the management of their farms.

Types of Budgets Most Useful

Since lack of time precludes the possibility of making budgets of all possible combinations of varying price and yields, the following budgets might be selected as most valuable:

1. A budget based on average yields and average prices, the yield figures representing average yields on the farm in question for the past five or ten years, and the prices the approximate average prices that seem likely to prevail during the next five or ten years. This budget should show the approximate average net return that may be expected over a period of years from the farm as organized at present.

2. A budget showing the possibility of increasing the income through reorganization of the farm, if the operator feels that the organization can be improved upon. It may be possible to make some change in one or two of the more important farm enterprises.

3. An annual budget based on the present organization with lowest crop yields experienced in years of partial or total crop failure and prices that have usually prevailed during such years. This budget should bring out the problems which must be dealt with in such emergencies (feed shortage, changes in feeding practices, borrowed money, etc.). From these figures, it will be evident what reserves of feed, seed, and capital must be carried over from the "good" years to meet the deficit in "poor" years. In an area in which yields vary greatly from year to year, this type of budget will probably be the most valuable of the three budgets suggested.

Possibilities or Benefits of Budgets

A carefully prepared budget enables a farmer to estimate with reasonable accuracy the average income which he may expect over a period of years from his present farm organization. If this income is insufficient to meet the family needs, or the operator desires a larger income, budget calculations may further be used to determine whether or not the income can be increased by making changes in the organization and management of the farm. Furthermore, a budget based upon yields expected in "poor" crop years should be useful in indicating what management problems must be dealt with in such years, thus making it possible to prepare for these emergencies in advance. Furthermore, a budget based on "low" prices might also be helpful. Unquestionably, making a reasonably complete budget or budgets of the farm business stimulates thought and "exercises" the judgment of the farm operator. The practice of planning in advance, together with a record kept as a check upon the accuracy of the estimates will gradually improve the farmer's judgment and thus lead to more efficient management of his business.

Weak Points of the Budget

The value of a budget as an instrument in farm management is unfavorably affected by the uncertainty of crop yields and the uncertainty of price. The time and training required for making budgets are other handicaps.

In areas subject to violent fluctuations in yields the actual outturn of any one year's crop quite often differs greatly from the advanced estimate. Farmers are likely to raise the objection that, "It's no use to make a plan in advance when you don't know what yields you will get until the crop is harvested." The so-called "average" yield may, in some cases, represent the most usual yield while, in some other cases, it may represent a composite of ten years' yields, none of which are close to the average. In the latter case an advanced estimate of the year's business based upon average yields would not be of much value because in all probability the actual yield for the year would be considerably above or considerably below the average.

It is also difficult to forecast price accurately. This variable often causes a great discrepancy between advanced estimates and actual receipts. Specifically, one of the main weaknesses is that it is a trial and error approach. Only experiment or demonstra-

tion can prove the accuracy of a budget. The advance estimate of the year's business may be completely upset by an unexpected change in the prices of the farm products. This weakness detracts from the value of the budget.

The weakness due to uncertainty of price and yields could be overcome to a certain extent by preparing for each year a complete set of budgets representing several possible combinations with varying prices and yields. This, however, would require a great deal more time than the average (or even the above average) farmer could be expected to devote to budgeting. Considerable training is necessary and assistance is usually required in making out one set of budget figures. Making a farm budget is a "large order" for an individual who has never done it before. The time and training required is one of the greatest difficulties in promoting budgeting among farmers.

Method of Procedure

The methods of making the three types of budgets suggested can be taught to small groups of farmers in a series of meetings attended by the same individuals. At these meetings the types of budgets might be considered in the order suggested, the starting point being the budget of the farm as it now is, the second step the reorganization, and the succeeding budgets the annual estimates based on lowest likely yields or variations in yields. Farm account records should accompany the budgets. The records provide a means of checking the errors in the estimates, thus improving the judgment of the farm operator and enhancing the accuracy of succeeding estimates. Increased efficiency in management should result. A combination of budgets and farm accounts presents a problem worthy of further study.

Since the method suggested requires a series of meetings with the same group of farmers, the spread of influence would be limited to approximately the same sphere as farm accounting projects. Possibly a less intensive method making it possible to reach larger numbers of farmers with less detailed budget material could also be developed.

In South Dakota we have had a limited experience in using the farm budget in farm management extension. In Dewey County the county agent and an extension specialist met with a small group of farmers and with them worked out a budget for two farms, one with 960 acres and the other with 320 acres. Those are typical sizes for farms in the county. These budgets

were then presented to two other groups of farmers for suggestions and criticisms. After the revision they were mimeographed and mailed to the 650 farmers in Dewey County along with a blank form for making an individual budget. Individual farmers made requests for assistance along the line of working out a farm budget, so the county agent met with small groups in farm homes early last January and helped 25 farmers work out budgets for their 1930 farm operations. A brief summary of these 25 budgets was used for discussion purposes by the county agent, relating it to the 1930 outlook material at a series of farm meetings held throughout Dewey County early in the spring. These same farmers will be called together again during this winter to check up on their last year's budgets and to make out new budget plans for 1931.

Two farm-planning meetings were held in Walworth County this fall. A select group of farmers was invited to each of these meetings by circular letter sent out by the county agent. Six farmers attending the one meeting made out their budget plan for 1931, and 8 of the 12 farmers who attended the second meeting made out farm budgets. A great deal of interest was evident at both meetings. The success of these two meetings suggests that a group of from 12 to 15 farmers is not too large to be successfully handled at meetings attended by both the county agent and farm management specialist.

In 26 counties having county agents, at least one typical farm budget of the most common size and type of farm in that county has been developed. These were secured by personal interview with farmers operating farms which were considered typical. The budget in each county is being used by the county agent or extension specialist in connection with outlook material at meetings in the county.

Last fall a series of livestock outlook meetings were held in the state covering most of the county agent counties. The farm budget figures were successfully used to illustrate the application of the outlook to specific farm problems in that series of meetings.

We have no question as to the usefulness of the farm budget material in connection with farm management extension work, even though our experience has been very limited. Just what form it will eventually take depends upon further application of this work. Obviously, only the better class of farmers are now using the budget. From an extension standpoint the problem that confronts us is having a budget form which provides sufficient de-

tail to make the resulting plan valuable to the farm operator and yet simple enough for its general application among farmers. The farm budget, of course, is a means of transmitting farm management facts to farmers but to us it appears that its principal purpose and ultimate object is to teach a method of thinking through or of stimulating and guiding constructive thought concerning the management problems of each individual farm.

COORDINATION OF FARM MANAGEMENT EXTENSION PROGRAMS[1]

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The subject "Coordination of Farm Management Extension Programs" assigned for this paper suggests two questions to the writer. The first is, "Why do we do farm management extension work?" The writer's own personal answer to this question is that *we do farm management extension work to help farmers make more money.*

A survey of plans of work of different state extension services shows such statements as these: "The purpose of this project,"—viz., the farm management extension project—"is to help farmers bring about better organization and management of their businesses"; "The aim of extension work in farm management is to lower the cost of producing farm products"; "The purpose of this project is to enable farmers to raise their standards of living"; and "The purpose of this project is to bring about a more satisfied farm population by furnishing farmers with economic information that will enable them to increase the returns which they receive for labor and capital."

These more academic and classical statements of purpose which serve as excellent preambles of plans of work and annual reports can usually be resolved into the one statement of purpose; viz., "We do farm management extension work to help farmers make more money." The writer knows of no justification for spending time and money on farm management extension work unless it helps farmers make more money, and this discussion is based on the assumption that none other exists. There is no place for extension for extension's sake in the farm management field.

The second question suggested by the subject of this paper is, "With what should a farm management extension program be coordinated?" A study of outstanding examples of successful farm management extension work in this country—and using as a measure of success our reason for doing this type of extension work; viz., "to help farmers make more money"—convinces the writer that the success of a farm management extension program

[1] Paper read at the twenty-first annual meeting of the American Farm Economic Association, at Cleveland, Ohio, December, 1930.

depends, in a large measure, on its close coordination with the following five lines of work; viz.:

1. The farm management research program.
2. Other economic extension work such as that in the fields of marketing and agricultural economics.
3. Extension work in the so-called non-economic fields, such as animal husbandry, agronomy and agricultural engineering.
4. Extension work dealing with the health, happiness and social problems of the farm family, such as that in the fields of rural sociology, rural government and home economics.
5. The resident teaching work in farm management at our agricultural schools and colleges.

Coordination of the Farm Management Extension Program with Farm Management Research

We have been told that over a long period of time agricultural production and practices tend to become adapted to changing economic conditions. Theoretically, such economic changes as the introduction of labor-saving machinery, changes in market demands, increased cost of labor, and changes in storage and transportation facilities may be reflected back to the farmer in the price which he receives for his product and in his costs of production; and in the end changes in farm management practices and organizations result. However, if these changes are left to the operation of economic laws, or in more simple terms, to the slow process of starvation, they come only after much distress and grief. We have seen the production of such highly concentrated products as pork, beef, flax, butter, wheat, and wool, which were once important products in our eastern states, move gradually westward under the pressure of competition with such bulky and perishable products as whole milk, hay, potatoes, and other vegetable crops. However, many farmers continued to produce beef, wool, and butter in our eastern states long after the time when they should have been producing whole milk and other more perishable and bulky products.

This lag in the adjustment of farming practices to changing economic conditions is not due to the fact that farmers are poorer business managers than persons in other lines of production, but more to the fact that they frequently do not have the necessary information on which to decide whether a certain economic change is permanent or temporary. It is also in part due to habit and inertia. Many manufacturers of carriages and wag-

ons were positive that the automobile had not come to stay, and continued to turn out their red running gear buggies long after their labor and capital would have given greater returns in the automobile industry. It is indeed a difficult thing for a person whose father paid for a farm or accumulated a fortune in non-agricultural lines of work by following certain practices, to realize that the present generation cannot always repeat the successes of previous ones by following those same practices.

At a low point in a livestock cycle an individual farmer may realize full well that the price of milk or beef is so low that he will not be able to make expenses and interest on his capital, but unless he is shown from the results of farm accounts and surveys in his own area that with the ups and downs of the dairy or beef cycle, the production of milk or beef has paid better than any other enterprise, he may go out of this line of production and into some other less adapted to his section at the worst possible time for such a shift. It is of vital importance that a farmer know whether a radical change in the price or returns for a certain product is temporary or permanent, and in order to tell him this we need farm management and other economic extension work.

A century ago there was little need of farm management research or extension work. Most of what a farm family produced it consumed, and most of what it consumed it produced. If they didn't produce enough to clothe and feed themselves, either they were cold and hungry or else more fortunate neighbors had to help them out. Cost of production studies and farm organization surveys were little needed in those days.

With our ever changing economic conditions, and because farming has become more and more a matter of production for sale rather than for home consumption, there is a decided place in our agricultural educational work for farm management information. No one farmer lives long enough to try out for himself very many different types of farm organizations. He needs information based on the experience of a large number of other persons who are engaged in the same business.

There is probably a greater need for supplying farmers with the results of farm management and other economic research work than with any other kind of information. This is because farm management is a comparatively new subject and also because a farmer cannot see the returns obtained by his neighbors from different farm management practices and organizations in

the same way as he can observe the results of sowing different varieties of seed or using different amounts of fertilizer. It is very easy to see the good crop of grain or potatoes that was produced by certain seeding, or fertilization practices; but like the research worker who is making a farm income survey, a farmer cannot tell by riding past a neighbor's farm whether the well-painted buildings and other evidences of prosperity are the result of a well-organized farm business or of a fortunate marriage or legacy.

The gap between farm management research and putting into practice the recommendations based on research is probably much wider in the economic field than in any other. Farmers had read bulletins giving the results of feeding and fertilization experiments for many years before we ever heard of the term "farm management." The average farmer is much better able to digest the results of an experiment in feeding dairy cattle found in an animal husbandry bulletin than he is the usual information found in a bulletin giving the results of a farm management survey or of a group of farm accounts.

If we assume that there is a need for farm management research to provide information that will help farmers make more money, then the proper coordination of our farm management extension and research programs should include two things; viz., *getting the proper information* and *getting it across to the farmer*. Being an extension worker and in the field of farm management, the writer may be somewhat prejudiced on this point, but he feels that the only real justification for doing a piece of farm management research work is that it will mean more dollars for farmers. If we use this test for evaluating farm management research and then look over the field, we find it strewn with hundreds of valuable studies, the results of which may have been fully presented and discussed at meetings of this kind, but which the farmer has never read, or perhaps even heard of.

The farmer may remember that some fellow did stop him when he was trying to get in his alfalfa, or followed him back and forth across the field while he was trying to finish discing his wheat ground, and asked him a lot of questions about what is cost to grow corn or operate his tractor. He may even have asked his county agent what they ever did with all those figures, and received the old, old reply, "Why they told me they were going to send a copy of the bulletin to everyone who cooperated"; or, "The study has been completed but the bulletin isn't out yet";

or still worse, that "They want to get three years' records before they publish the results." What that farmer should have had were brief summaries of different parts of the study as the records were being worked up. Later he should have had a summary of the entire study prepared by people accustomed to doing extension work with farmers. Then he should have had a chance, along with his neighbors, to attend a meeting where the man who made the study and the farm management extension specialist together with the county agent would try to show him how he could use the results to help make more money. Then perhaps two years later when the bulletin appeared he would be ready to digest it.

The writer most certainly does not wish to appear to underestimate the value of careful and detailed research. He realizes that there is no field where there is greater danger of helping farmers to *lose* money by extending inaccurate or unreliable information than in that of farm management. However, he does take decided exception to the attitude frequently taken by both research and extension workers who, when the detailed research type of bulletin is published, say to the farmer, "There it is. Take it and read it." The greatest criticism that the writer has heard farmers make of the farm management work of our state colleges and of the United States Department of Agriculture is that the results of the research work do not get back to the people on the farms, or at least do not reach them in the form that they can use.

To quote verbatim the statement of a successful farmer who holds an advanced degree from one of our state agricultural colleges and who has had considerable experience in both research and extension work: "You people have done some excellent farm management research work in our territory and have published the findings in experiment station bulletin form. What we farmers want now is someone to take those bulletins, boil them down, and come out and interpret the results for us and show us how to apply them to our own businesses so as to make more money." The writer feels that if a college-trained man with experience in research work needs this help in the interpretation of the results of farm management studies, that we certainly have come far from fulfilling our obligations to his neighbors who have not had that technical training.

Sound extension must be based on sound research; but the obligation of both the research and extension worker is not ful-

filled when the bulletin is published, nor when we mail a copy of it to the farmer who let his tractor stand still in the field while he answered the enumerator's questions, or who struggled to keep awake that night when he "put down his best estimates" on the questionnaire. Most certainly all of the responsibility for lack of coordination between our farm management extension and research programs and the consequent failure to get the results back to the farmer cannot be placed on our research workers. In the writer's opinion research and extension workers are about equally to be blamed. Not excepting the writer's own institution, his own department and himself personally, we extension workers are to be blamed for not devoting more of our time to the preparation of extension bulletins and summaries of research work. Too often we extension workers have said to the farmer, "Yes, we have a bulletin on that. I'll send you one."

Many times our research workers are at fault for the way in which they so jealously guard the preliminary results of their studies from the farmers' eyes and for protecting so carefully their manuscripts during the usual year or two that "the bulletin is on the press." Frequently after one year's records have been partially tabulated, instead of finishing the job and helping the extension worker get the results out to the farmers who are waiting for them, the over-zealous research worker has a new supply of survey blanks printed, organizes his crew and goes after the farmers for "another year's records." Many of our research workers need to cultivate the ability to take the shears and cut off a piece of the cloth and get it out to the consumer instead of waiting until all the yarn is woven up; or worse still, stopping the weaving to go out and get more yarn.

Again let the writer make clear that as an extension worker he feels decidedly the need and value of complete and detailed research work. However, he believes that there is yet to be made a farm management study which did not provide, long before the "bulletin is printed," accurate and valuable information, the immediate release of which would have helped farmers to make more money.

Another way in which we fail to coordinate our research and extension programs in farm management is that we too often over-estimate the experience and time which the average farmer has for studying and analyzing the results of research. Frequently at meetings of this kind, after a careful and detailed discussion of a particular piece of research has been given, the

writer has heard men well trained in the interpretation of scientific data state that although they had read the bulletin and listened carefully to the discussion, they didn't quite get all of it, and wished that more time could have been spent asking questions about the study. If the trained worker feels this way, how about the average farmer? Few farmers have the experience in interpreting scientific data that persons attending meetings of this kind are supposed to have, and very few farmers are on state or Federal expense accounts that enable them to attend such meetings. Frequently the only opportunity the farmer has to read a scientific bulletin is while walking up the lane from the mail box to his house, or in the few minutes between putting out the lantern and putting out the cat. In that time he can just about get through the author's acknowledgments and the paragraph telling where the survey was made.

As extension workers we need to work with our research men in preparing more brief extension bulletins, giving the high points of our farm management research studies. Frequently the farm management specialist might better spend a day in his office preparing an extension bulletin or circular letter that might be read by several thousand farmers than to spend the same amount of time in a distant part of the state at a meeting attended by a dozen. We have long passed the point where we judge the efficiency of an extension program by "days in the field." Those of us who are engaged in research need to keep in mind that we are doing the work to help farmers make more money and that the expense of research projects is not justified unless the results accomplish this end.

Another way in which we can bring about a better coordination of farm management research and extension is by a closer adherence to the idea of *basing our recommendation on facts.* A recommendation based on the experience of a large number of farmers is usually more reliable than one based on the opinion of the farm management specialist. The writer also believes that farmers are more likely to adopt new practices because they realize that their neighbors have found that those practices pay them than because someone tells them that the practices ought to pay.

In a desire to discover something new and startling there has developed in our farm management extension work a tendency to under-estimate the value of what has been done by individual farmers and to over-estimate the ability of the extension spe-

cialist himself to figure out what farmers *might* do. The writer refers specifically to the practice in farm budgeting work of working out on paper hypothetical farm organizations and on paper figuring out what income these hypothetical farms should give. Contrasted with this practice is that of getting from a large number of farmers by survey or farm accounting method, records of what their farm organizations actually are and what incomes have actually been made with different types of organizations. From contact with farmers who have been exposed to both methods, the writer is firmly convinced that the number of farmers who have adopted improved practices as a result of recommendations based on actual farm records, far exceeds those who have been persuaded to make changes because of recommendations based on a hypothetical farm worked out by the extension specialist.

The invariable questions asked by the farmer about these hypothetical farms are: "How do you know that they will give that income?" And "Has anyone tried them out?" On the other hand, farmers have for centuries made changes as a result of learning that certain practices have been proven to be successful by their neighbors. Those of you who were raised on farms producing potatoes and who lived through the transition from the planting sack and digging fork to the horse-drawn planter and digger did not make the change because some one figured out on paper how much time a planter and digger *ought to save.* One day when the crease on your shoulder got too deep, or the callous on your instep too thick, you went over to a neighbor's and saw what a planter or digger really would accomplish. Perhaps your neighbor was only letting the agent try the machine out on his farm; but at any rate, if you changed from hand to machinery methods you very likely did it as a result of what *had* happened and not what some one figured out *should* happen.

One of the criticisms frequently made by the supporters of the hypothetical farm set-up of the method of basing recommendations on farm survey records or accounts kept by farmers, is that the average farmer cannot give an accurate estimate of his receipts and expenses. The writer believes that there are enough reliable cases showing how comparable are the farmers' estimates of such things as milk production and the actual weights obtained from milk plants; estimated tax payments and actual tax records; and estimated crop yields and actual measurements or weights of crops to prove that farmers really do know enough

about what they produce, spend, and receive to give us very accurate data. At least the writer feels that the estimates of the farmer himself obtained by the survey or farm account method are far more reliable as a basis for making recommendations than those made by the extension specialist while sitting in his office.

Another argument presented against the use of actual farm records is that because of yearly variations in yields and prices we should not use the actual yields and prices obtained by farmers in any one particular year, but should rather build up a hypothetical case based on averages over a period of years. This second argument seems to the writer to be open to two decided criticisms. The first is that if we build up a farm on paper by using average yields and average prices, we immediately run into the old questions from the farmer of: "Is this an actual farm?" and "Has someone done this?" Our only answer to these questions can be that our paper farm represents our estimate of what might happen under average price and average weather conditions; and the farmer does not farm under average conditions. He takes each year's weather and prices as they come.

Another objection that the writer sees to using average prices and average yields instead of actual prices and yields is that by so doing we lessen the opportunity of pointing out to the farmer the variations in yields and costs and the factors affecting them. The writer feels that the tendency on the part of some farm management extension workers to base their recommendations on paper farms and hypothetical farm budgets rather than on the actual experience of farmers is a decided step away from basing our recommendation on facts.

The use of hypothetical farms based on opinion rather than facts reminds the writer of how, during the early part of the World War, in our eagerness to build up our air service, many persons worked out airplanes on paper in their offices. Based on the laws of physics, the wing spread, dihedral angle, lift, weight, and balance of these planes were correct, and orders for their construction were let in large numbers. In theory these planes should lift so much, go so many miles per hour, and consume so much fuel. What the pilots who had to use those planes wanted to know was, "What has a plane of this type really done?" And the only way to find out was to try them. Later, in building planes, careful consideration was given to the results that certain types of construction had given; but the museums

and scrap piles of our army and navy and the numerous entries in our aviation records of "killed while in training" stand as mute evidence of another example of basing recommendations on what certain factors were *supposed* to give rather than on the actual evidence of what they *had given.*

The writer does not wish to give the impression that he believes the preparation of farm budgets has no place in our extension work. The idea of using results of actual farm records and accounts to plan out the organization of a farm business is nothing new and had been done for years before the term "farm budgeting" was invented. In so far as farm budgeting is based on the actual experience of farmers, it is sound; but when in setting up farm budgets we attempt the short-cut of substituting the opinion of the extension worker for the experience of farmers, we place ourselves in the class of the swivel chair aviators who built the paper planes based on theory rather than practice.

The writer recently heard an economic extension worker say that in his work he hesitated to use the results of farm surveys because of the inability of farmers to give accurate figures, and therefore depended on data in the census, in yearbooks and in crop reports, for working out recommendations for successful farm organizations. He did not, however, explain why he believed data given by farmers to census enumerators and crop reporters were likely to be so much more accurate and reliable than those put down in a farm account book or given to a trained farm management specialist making a survey.

Another outstanding need in the farm management field is for a more careful planning of our research programs with reference to the needs of farmers. The personal desires and interests of the research worker are frequently the deciding factors which determine what particular study he undertakes. Those of us who are extension workers have a decided obligation and responsibility for finding out what are the problems of farmers on which research should be done. Our fellow workers in the research field have an obligation to cooperate with us by placing the needs of farmers ahead of personal inclinations when deciding on what studies to make.

Coordination of Farm Management Extension Programs with other Economic Extension Work

If a farm management extension program is to be effective; i.e., is to help farmers make more money, it must be closely co-

ordinated with other economic extension work. The farmer wants economic information in order to help him make more money, and a dollar made as a result of information labeled marketing or agricultural economics will pay just as many taxes or buy just as much gas for the tractor as one made by use of one marked farm management. Farmers do not draw as clear-cut lines of demarcation between the different kinds of economic information as do the persons who assemble and dispense the different brands.

It is quite impossible, and in the writer's opinion not desirable for extension purposes, to attempt to separate and classify all of our economic information into marketing, agricultural economics, and farm management. Let us, for example, consider agricultural outlook information. Does this very valuable kind of information belong to the field of marketing, farm management, or agricultural economics? The information which the economic extension worker may have at hand may indicate that we are approaching the peak of the dairy cycle and are likely soon to have an over-production of milk and dairy cows. Of just what use do we put this information to help farmers make more money? We perhaps show the farmer that he must prepare for lower milk and cow prices by raising only the best heifer calves, by keeping production records and culling his herd, by more economical feeding and by not over-investing in high priced breeding stock at the peak of the cycle. We may back up and supplement our recommendations by results of accounts and surveys on factors affecting the costs of producing milk and of raising heifers. We can also perhaps show the farmer how to effect economies in the operation of the plant of his cooperative dairy association and assist on some of his credit problems in connection with the purchase of dairy feeds.

Now just which of this information is farm management, which marketing and which agricultural economics. The writer is frank to state that he does not know, and further, that he feels it a waste of time to attempt to divide it into these different classifications. *What the farmer wants from his extension service is information that will help him make more money;* and it is of little consequence to him under what label the information is presented, so long as it helps him to get the dollars.

Let us further suppose that our research workers have made a study of the factors affecting costs and profits in producing potatoes—a 100 per cent farm management study, we might say—;

but in studies of this kind it is frequently found that one of the factors affecting profits is the price received for the potatoes; and the price is very likely to be dependent on grading problems, methods of sale, and the time at which the crop is sold. We then need to give the farmer information on whether it pays to grade, which methods of sale have been found to be most profitable, and perhaps also outlook information on the present year's crop. If we were able to divide all of this potato information into the different economic classifications we would not have helped the farmer make any more money by so doing, and we might also prevent ourselves from giving him all of the information available.

When the farmer comes to an extension meeting where the economic factors of potato production are to be discussed, he wants, and should get, the best available farm management, marketing, agricultural economic, and outlook information available on potatoes. One of the most deplorable answers that the writer has ever heard given a farmer was when one asked a farm management extension specialist for information on the intended potato acreage for the coming year and was told that he would have to get that from the marketing extension specialist as the outlook information at his institution was handled by the marketing department. The experience of a large number of state extension services has clearly demonstrated the inadvisability of attempting to make the agricultural outlook a distinct and separate subject. It has been clearly demonstrated that outlook information may very well be handled by either the farm management or the marketing extension specialist, but also that it should be closely correlated not only with all phases of economic extension work, but with the entire extension program.

Need of Coordinating Farm Management Extension Programs With Other Subject Matter Extension Work

There is probably fully as much need for coordinating all of our economic extension work with other subject matter extension programs as for the close coordination of our farm management extension program with that in marketing.

Referring again to our farmer who wants to know how to make more money on his potato enterprise, farm management studies in his region may show that it pays to use a certain amount of fertilizer per acre, and that spraying is more economical than dusting. The farmer's next questions are likely to be on the kind of fertilizer to use, amount of pressure to use on the sprayer,

whether to apply the fertilizer in the row or broadcast, what distance apart to plant seed pieces, and other questions on cultural practices suggested by the farm management study.

The answering of questions of this kind may not fall properly into the field of farm management, but these questions are bound to arise when the results of a farm management study are presented to a group of farmers and provision should be made for their being answered promptly by some one. If it is not possible to have present at the extension meeting, the subject matter specialists from the particular departments concerned, then the duty of answering these questions devolves upon the county agent.

There is a growing tendency throughout extension work in the different states, to tie up farm management information more and more with other subject matter. Each year sees an increasing number of the commodity type of meetings where the farmer is given the best information of all kinds that the extension service has on the particular commodity concerned. This is a decided step toward increased efficiency in our extension work. The farmer does not draw sharp lines of distinction between the farm management, the pathological, and the agronomic dollar. They are all the same when the feed dealer or the tax collector gets them.

Coordination of Farm Management Extension Programs with Extension Work Dealing with the Health, Happiness, and Social Problems of the Farm Family

In the commentaries of Julius Caesar we find the statement that a certain tribe "are a people with poor houses, the roughest kind of clothing and little food and the merchants go there but little, for the people have nothing with which to buy—because they produce little." Caesar, besides being a good military strategist and bridge engineer, also knew a little about farm management. The Aquitani could not spend an income unless they had one. Neither can our present day farm families.

In extension work directed toward raising the standards of living of our farm families, we are apt to lose sight of the fact that it is frequently worse than useless to dangle a budget of $1,500 for living expenses before the eyes of a farm family that has only $500 to spend unless *we at the same time try to help that that family make an income that will support that $1,500 budget.*

To quote the words of a farmer who was told that it would take $1,440 per year to provide a decent standard of living for a farm

family of five: "I realize well enough that my children should have their annual health examination, should visit the dentist twice a year, have a better diet and better clothes, and that both my wife and I should take an annual vacation; but we had exactly $700 cash income to live on last year. What I wish those people who made up that budget would do is to show us how we can spend that $700 more wisely and then how to get the $1,440."

It would seem to the writer that a more sound approach to the problem of raising the standards of living of our farm families than simply throwing a budget at them which their present incomes will not sustain, would be to (1) Find out what farm families have in the way of food and clothing and health, social and educational advantages. (2) Find out what farm families are actually spending for these items. (3) Endeavor to show how a more wise expenditure might be made of incomes now available. (4) And lastly, work out an itemized budget that will maintain a satisfactory standard of living—*and at the same time make a farm management study to find out what types of farm businesses or organizations will support that budget.*

Too frequently our standard of living studies have included merely the preparation of a budget of family living expenses and its presentation to farm people with the admonition to lift themselves by their economic boot straps. In this respect persons making the budgets have been much like the Phoenician merchants who displayed their attractive wares before the Aquitani and only caused those impoverished people to curse their gods and the merchants as well because they had nothing with which to buy.

Coordination of Farm Management Extension Programs with Resident Teaching Work

There is a decided advantage in close cooperation and exchange of duties between persons engaged in resident teaching and extension in the field of farm management. The extension man who does only extension work is liable to become too general and too opinionative in his statements, and the resident teacher too much dependent upon his last year's lecture notes. The writer feels that it is highly desirable for the farm management extension worker occasionally to give a course to college students. It helps to make him more exact and definite in his statements and better to organize his material. It ialso improves the resident teacher's technique, if he does a certain amount of ex-

tension work. He frequently finds out that he can learn a considerable amount of both subject matter and teaching methods from having a class of students who have paid no tuition, have no fear of making a poor grade and have only to go to sleep, look out the window, or go home in order to withdraw from the course.

Summary

To summarize briefly and to attempt to give some constructive suggestions for a better coordination of farm management extension programs:

(1) *We do farm management extension work to help farmers make more money.*

(2) The farm management extension program should be closely coordinated with economic research and resident teaching and with other parts of the extension program.

(3) Under present economic conditions farmers need farm management extension work more than ever before.

(4) It is a more difficult job to bridge the gap between research and the farmer in the economic field than in any other.

(5) There is no justification for farm management research unless it means more dollars for the farmer.

(6) The job is not finished when "the bulletin is printed."

(7) The majority of our farmers have never even heard of many of our excellent farm management research studies.

(8) The blame for failure to get the results of economic research work back to the farmers rests on both research and extension workers.

(9) Extension workers should spend more time in their offices preparing extension bulletins, news letters, radio talks, press articles, etc., and extension directors and other executives should support them in this by not judging the effectiveness of an extension program by "days specialist was in the field."

(10) If the farmer had as much time and training in interpreting the results of research as does the average experiment station or extension worker, he would probably do just as good a job, but we must recognize that the farmer does not and cannot have that time and training.

(11) We must adhere more closely to basing our recommendations on facts.

(12) "Farm budgeting" is nothing new but simply a new name for an old idea and is sound in so far as it does not mean

substituting the extension specialist's opinion for the experience of farmers.

(13) A farm management research program should be based more on the needs of farmers and less on the personal interests of research workers.

(14) No clear-cut line of demarcation can be drawn between farm management and other kinds of economic extension work.

(15) The problem of raising the standards of living of farm families is a farm management as well as a sociological problem.

(16) The results of economic research are made available to farmers by our extension services, and we must recognize more fully that the job of getting the information across to the farmer is one that requires workers who are just as well trained and experienced in extension methods, as are our resident teaching and research workers in the methods employed in their fields.

(17) —and again *"We do farm management extension work to help farmers make more money."*

DEVELOPMENTS IN AGRICULTURAL ECONOMIC EXTENSION WORK[1]

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As early as 1910 the Federal Office of Farm Management, under the supervision of Dr. W. J. Spillman, had a section called the Section of Field Studies and Demonstrations, composed of nearly a dozen men who were combining studies in farm management with demonstration work in farm management throughout the United States. The writer was one of those men. Much of the work consisted of the study of successful individual farms here and there and a publication of the methods followed on such farms and the results secured.

Upon request, individual farmers were given help in analyzing their farm business and replanning their field and farm organization. As we look back, we see this as a feeble work—a half dozen men, not overly well-trained in economics, covering the whole United States in farm management extension work. But this early work, unimportant and insignificant as it may seem, had the germ of an idea in it, an idea that found its way into the then newly-developing county agent work in practically all of the northern and western states, and an idea that has become a fundamental part of county extension work everywhere in the United States; namely, the making of studies, surveys, analyses, and facts, the basis of the extension program everywhere.

It was about this time that Dr. G. F. Warren of Cornell, got out his first farm management survey bulletin and gave us the labor income of farmers, as one measure of their relative efficiency. About 1912, G. P. Scovell, then a county agent in Chemung County, New York, and a former pupil of Doctor Warren, showed us more fully how to apply farm management survey data in extension work. His plan was so logical and attractive that the writer sought and was granted the privilege of using $50,000 out of a $400,000 appropriation to the Federal Office of Farm Management for cooperation with the states in the employment of state farm management demonstrators.

Mr. L. H. Goddard of Ohio, was put in charge of this work and promising men were assembled in groups of 6 to 12 and given intensive training in taking farm records, tabulating them, analyz-

[1] Paper read at the twenty-first annual meeting of the American Farm Economic Association, at Cleveland, Ohio, December, 1930.

ing them, and taking each farmer's record back to the farmer for explanation and comparison with the average and best farmers of the community.

Thus, farm management extension work got a substantial start in the United States. Its progress was slow. Not many states had carried on farm management survey work or had much local economic data to extend. The agricultural colleges, for the most part, had inadequate and, too often, no courses in farm management. Few county agents had been trained in the work.

The first effort of the early farm management demonstrators was to help each county agent collect 60 to 70 farm records, require the county agent to come to the college and help tabulate and interpret these records, following which the farm management demonstrator and county agent returned to the county and took each record back to the farmer and discussed it with him. That is where the demonstration end of the work came in. That was the particular phase of the work, and still is, that makes it extension work and justifies the use of extension funds in it.

County agents generally didn't take to this work very strongly. It took too much of their time. They were rearing to go with more popular things. The first ten days of survey and tabulation work left them in doubt as to the value of the work; it looked like too much guess work for them. They usually had to finish the tabulation and get into the analysis and interpretation before they became convinced of its value. Those that came through were usually strong for the work and made some of the best county agents in the United States.

Then came the farmer account book. This put off for the county agent the grueling experience of the farm management survey, with its consumption of time and tabular and analytical work, till later in the year, and maybe he would escape it altogether. He jumped at the chance and put out the first farm record books. As it developed, the burden of assembling the records and analyzing them largely fell on the state farm management demonstrator, and the latter, often without the backing of a strong economic teaching or research department, struggled through it as best he could. Out of this situation many states made slow progress, barely keeping head above water, but some succeeded and succeeded gloriously. Among these states that succeeded outstandingly are New York, Ohio, Indiana, Illinois, Iowa, Massachusetts, Minnesota, Maine, Montana, North Dakota, and California.

This may be called the first epoch in economic extension and was based largely on the survey, analysis, and interpretation of individual farms. Need for more research in economics and better teaching departments became increasingly clear as time went on and there resulted the Purnell Act, designed to give special help in the research field and to strengthen teaching.

Even before this Purnell Act of 1925, the need of an economic program that took into consideration not only local agricultural facts but state-wide, regional, national, and international agricultural facts became clear if extension work was to accomplish any large results.

About this time, the Bureau of Agricultural Economics of the Federal Department of Agriculture began getting out its Agricultural Outlook, which took stock of agricultural crops and products on hand throughout the United States and the world and indicated the coming needs of the nation for different crops, livestock, and livestock products. Certain of the state colleges of agriculture did the same thing as regards the outlook within the state. Then the Federal Bureau of Agricultural Economics supplemented its agricultural outlook with a nation-wide survey to determine the intentions of farmers to plant and to breed. This was a great event in the world's history and put the headlight on in front instead of carrying it behind, as previously. It put information into the hands of farmers in advance of planting or breeding, so that surpluses that cause disaster to the farmer might possibly be avoided.

This may be called the second epoch in economic extension work, in which our old farm management demonstration work expanded into economic extension work, but with a strong farm management flavor.

This publication by nation and state of an annual agricultural outlook and the ascertaining and publication of the farmer's intentions to plant and to breed seemed so logical and sensible to the writer that, three years ago, with the consent of Director Warburton, we invited to Washington at the Department's expense representatives of every state agricultural college, to take part with the Department in getting out the agricultural outlook and encourage the issuance of a state outlook, and we have repeated that invitation every year since. This has had the effect of stimulating economic extension work in every state and territory in the Union that was not already going strong, and of course one knows that in applying agricultural outlook work

or adjusting acreage to national needs the biggest part of it falls at once into the realm of farm management. The agricultural outlook of state and nation has set economic extension work ahead, in my judgment, ten to fifteen years.

But, in the writer's mind, the outlook information supplements, but in no way supplants, the old farm management county survey or farm record data of sixteen to eighteen years ago. Local facts are still an essential of extension, and we still hold to the idea that every county agent should secure, tabulate, and analyze 20 to 50 farm records every year as a basis for intelligent extension work based on the facts.

A strongly developing phase of the original entire farm record idea is the enterprise record which considers only a part of the farmer's problems at a time. California has been outstanding in this work. Wherever a special farm management study is made of a particular subject, it has resulted in the extension specialist in that subject becoming particularly interested in the results and usually to his substantial edification. The horticulturist may have been advocating frequent shallow cultivation of oranges or peaches. The farm management survey or record may show that as good peaches or oranges are produced with four cultivations as with twelve cultivations and the cost for cultivating greatly reduced by the fewer cultivations. This enterprise method of approach is appealing strongly to extension forces in many of the southern states as the most satisfactory way of approach to economics in that section.

Some of the agronomy specialists have been laying great stress on pasture demonstrations for dairy cows, where farm management studies have indicated that in some sections the pasture land might better be plowed up and put into potatoes if the best interests of the farmer were to be considered.

There is an increasing recognition of the fact that extension agronomists and dairymen and farm management men need to work out their extension programs together. The need of this closer relationship is being increasingly recognized but needs to be speeded up. A good way to get started in the speeding up program is by the enterprise cost account route, which challenges the extension subject matter specialist in his own field.

In connection with this trend toward enterprise study should also be mentioned the trend in some states, particularly Illinois, toward cooperation by farmers with the agricultural colleges in employing county farm management men to help them in their

accounting work, covering operations of the whole farm. When 800 farmers pay $15 to $35 apiece to have some one help them with their accounting, analyses, and summarizing and continue their membership year after year, it speaks loudly for their faith in the practical value of farm management records and study.

This, to my mind, is the next big step that will be taken in extension work in the United States; namely, the placing of economic extension specialists by the colleges of agriculture and the United States Department of Agriculture, in cooperation with each county of the United States having sufficient farms in the county to justify it, who will give their whole time to the economic problems of farmers and guide them in their accounting and analysis work. And it is just such farm management work as Illinois and a few other states are doing along this line that will furnish the impetus to establish the idea. There will probably be as many as 1,500 of these county economic men in the not distant future in the United States. It is a good time right now, in our judgment, for competent men to take training and prepare themselves for these positions. I take it that it is America's purpose to build such farm efficiency and organization behind tariff walls as will enable the farmers of the United States to compete with the farmers of the world, on their own ground, or else adjust their production to meet the limited needs of the United States. In either case, each farmer in each county will need the soundest economic counsel he can get from the soundest source.

Another phase of economic extension work has been developing the past two or three years that needs mention here. It has to do with the setting up of standards of living—seeing what desirable farm standards of living cost and then trying to adjust the income of the farm to pay for the standards thus set up. In a number of states farm women and men, encouraged by extension agents, have met together to consider what they want in the way of a standard of living. What is needed in a well-organized household for clothes for each member of the family, groceries, medicine and doctor bills, insurance, reading matter, education, recreation, and travel? Labor sets up a standard of living and demands a wage that shall meet it. Labor has made great steps forward in the past few years. The farmer, perhaps, can profit by labor's example.

Anyway, extension forces here and there are meeting with

farm folks and considering this matter, and county agents and farm management demonstrators are in attendance and are called upon to suggest ways of so increasing the farm income as to permit of this higher standard of living. It is a mind-stimulating exercise. Farm people enjoy it. It is spreading a knowledge of agricultural economics—developing closer cooperation between men and women extension agents, and we think it is worth encouraging, and so we are doing it. We think something very worth while may come out of it.

Now, to touch on another phase of economic extension work; namely, marketing. From the outset of cooperative extension in 1914, extension forces have been practicing various forms of cooperative marketing and buying. Nearly a thousand local cooperative selling and purchasing associations have been promoted yearly. Many of these have died and some have lived, so that there are to-day approximately 4,000 marketing associations in existence, promoted by extension forces, doing an annual business of around $225,000,000. The most successful cooperative buying associations fostered by extension have been the Grange-League Federation of New York and the Eastern States Exchange. The Grange-League Federation is doing an annual business of nearly $30,000,000 and the Eastern States Exchange of nearly $13,000,000.

The Federal Farm Board is making the adjustment of acreages one of the chief cornerstones in its program of marketing. If you don't produce too much, the marketing program is easy of solution. "Adjust your acreages" has become a slogan with the board. But, adjust your acreages means a knowledge of farm management, and so marketing and farm management and general economic studies of supply and demand, production and needs with estimates and surveys, have all focused the past year in the largest total development in economic extension since cooperative extension began in 1914.

Never, since the writer has been in extension, has there been such interest in economic extension work as there has been this year.

Factors that have contributed to present-day interest in economic extension have been the occasional outstanding success of farm management extension work in a few states; the agricultural outlook, and the intentions to plant and to breed idea that has spread into all the states; the sustained interest of the public in cooperative marketing and buying, with some success in that

field; the bringing to the Department of Agriculture for the past three years of one or more representatives of nearly every state to take part with representatives of the Bureau of Agricultural Economics in the development of the agricultural outlook; the regional outlook meetings of the past year; and, climaxing it all, the appropriation by the last Congress of $58,000 to the Federal Extension Service and $1,000,000 to the states, nearly one-half of which is being used for the employment of economic extension men the current year.

As a result of these appropriations, the economic extension staff of the states has increased from around 134 full- or part-time workers in all economics to nearly 200 at the present time, or an increase of around 60 during the current year, with more to be added as fast as they can be found or trained for the work.

The department has taken cognizance of this new situation in economics and is organizing itself to meet it and give greater help to the states. To this end, it is creating within the Bureau of Agricultural Economics and the Extension Service an economic extension unit that will be housed with the Bureau of Agricultural Economics and responsible to it for the subject matter taught and at the same time to be a joint employee of the Extension Service and responsible to that Service for its contacts with extension forces in the states.

This unit will be made up of a leader and a staff of 8 to 10 assistants in the various fields of economics: farm management, marketing, and general economics, looking forward to extension specialists; also, in rural farm credit taxation, land utilization, and the like.

At the present time funds going into economics extension work from all sources amount to nearly $300,000 in farm management, $440,000 in marketing, $81,000 in rural organization, and $170,000 in general economics work, or a total of around $960,000, out of a total expended annually for agricultural extension specialists of $3,624,000, or about one-fourth of this total.

Summing up, we would say the trend in economic extension work, economic research work, and economic teaching work in the United States is distinctly forward. All extension work would benefit by more frequent conferences of farm management and other economic specialists with the subject-matter specialists in developing their respective extension programs. We are neglecting a big opportunity if economic extension specialists fail to keep these subject-matter specialists informed of what economic

specialists are studying and finding out and solicit their cooperation. Subject-matter specialists will spread the economic gospel if they are put in possession of it. We shall not be contented in economic extension work until there is an extension economic specialist in each larger rural county of the United States. That much is an essential as we see it if we are to meet in some degree the economic need of the farmer now and in the future. The trend is already in that direction. May we all do such helpful work with farmers in the county that that day will be hastened.

THE INTEGRATION OF RESEARCH AND EXTENSION FOR PROGRESSIVE AGRICULTURAL ADJUSTMENTS[1]

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Though research and extension differ widely "in nature, method, and motive," the cause which they serve is one and the same. "Research is a process of learning, while extension is a type of teaching. The field of research is the unknown, that of extension the known." In the business of agricultural advancement, research "is essentially the production or manufacturing end," and extension is "the selling or distribution end." At the one end are the research specialists, and at the other are the local farm and home demonstration agents serving the rural people. In between are the extension specialists whose usefulness depends "on maintaining contacts with both agencies, making the product more available, knowing where specialties can be found, stimulating a steady supply,"[2] and, let us add, a steady demand.

The term "integration," as here employed, relates to the unity, completeness, and harmony of related research and extension programs of autonomous agricultural institutions or agencies, considered either separately or as a whole. A program of effort presupposes some common objective, something of mutual concern, a goal worth striving for that cannot be gained by isolated effort—something, in fact, that challenges at once the creative thought and constructive leadership of the nation's combined research and extension forces.

Probably the advantages to be derived from collective thought and concerted action on the part of research and extension forces can best be visualized by taking stock of the progress that has been made in this direction and comparing it with the size of the undertaking involved in the matter of endeavoring to advance agriculture and rural life. Though much has been accomplished, evidently much remains to be done before ultimate goals are attained.

Now, what is the challenge of American agriculture and rural life to the nation's allied research and extension forces? Farms

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[1] Paper read at the twenty-first annual meeting of the American Farm Economic Association, Cleveland, Ohio, on Wednesday morning, December 31, 1930.

[2] Some thoughts from a paper by the late Dr. E. W. Allen, Proceedings of the Association of Land-Grant Colleges and Universities, 1926. Pp. 258-64.

are to be progressively adjusted to ever-changing physical, biological, economic, and social conditions. Production is to be synchronized with demand, marketing machinery perfected, costs of distribution reduced, consumption encouraged, the quality of farm products improved, outlooks perfected and used, tax burdens lightened, public services improved, credits made to serve changing rural requirements, the value of gold stabilized, competition met, and lands properly utilized. Both the forces of nature and of human society are to be made to work for, rather than against, the farmer and his family. The growing efficiencies and capacities of farmers are to be diverted from the production of unprofitable surpluses to the realization of remunerative incomes, praiseworthy standards of rural living, and cultural advancement. To attain these cherished objectives, greater power and effectiveness must be developed by the nation's research and extension agencies. Both types of endeavor must be progressively perfected and more intimately associated in a great general plan of agricultural advancement.

Efforts leading to agricultural improvement are by no means new. They have been going on since the dawn of civilization. Ages of time and enormous wastes of human life were required for the transition of our primitive ancestors from the hunting to the pastoral and from the pastoral to the agricultural stage. Learning to till the soil and to domesticate plants and animals were of such significance as to be attributed to the wisdom of the gods. Still more eventful were the invention of farm implements; the improvement of soils, crops, and livestock; and the control of diseases and insect pests. So effective have been these varied improvements, in American agriculture, that from early colonial times to the present, food, feed, and fiber crops have seldom been scarce relative to demand. Upon the whole, farmers have made greater progress in subduing the forces of nature and expanding their productive capacities than in fathoming the economic forces and making a financial success of the business of farming.

Great as has been the progress in matters of primary production, however, many fundamental problems remain unsolved. There is still room for discoveries of vast economic and social significance, for example, in the fields of agricultural engineering, soil fertility, plant and animal genetics, breeding, nutrition, diseases, and insect pests. In the evolvement of agricultural economics and rural sociology, therefore, the physical and bio-

logical sciences are not superseded or set aside. The two groups of sciences are mutually dependent. One cannot be developed advantageously at the expense of the other. In the nation's efforts to achieve rural advancement, it will have abundant need for the harmonious results of the physical and biological, as well as the social, sciences.

Appreciation of the importance of the economic and social problems of agriculture has arisen rather belatedly out of the transition from the self-sufficient stage of farming to that in which production is primarily for the markets f the world. This transition has been accompanied by agricultural expansion, depression, and attendant ills with which farmers were not prepared to cope. For example, neither incentives nor facilities for expansion were lacking at the close of the Civil War. The chief incentive was high prices during and immediately following the war, and the facilities were certain improvements in farm implements and machinery, lands in abundance, and increasing technical scientific knowledge. Both the numbers of farmers and their capacities to produce were greatly increased. Acreages cultivated expanded rapidly, and surpluses of farm products were created which the markets of the world could not absorb at highly remunerative prices. Then followed low prices, depression, and rural unrest which continued until about the time of the Spanish-American War. By that time acreage expansion had slowed down, consumption had increased relative to production, and the supply of farm products had become somewhat better adjusted to market requirements.

For a time thereafter prices tended to improve, and agriculture might have become established on a higher plane of prosperity had not other events brought on a second depression. The first of these was the introduction of dry-farming methods and drought-resistant crops which brought the semi-arid region under the plow; the second was the invention of still more efficient farm implements and machinery; and the third was high prices following the World War which, again, served as an adequate incentive for further expansion resulting in burdensome surpluses and another cycle of low prices, rural unrest, and renewed efforts to bring about needed adjustments in American agriculture. Needless to say, we are still in the midst of this depression. It is the joint function of research and extension to point the way out.

Though progress may appear to be made at too slow a pace,

especially in time of emergency such as this, the evidence at hand is far from discouraging. From the beginning the principles of cooperation, correlation, and integration have been as much a part of the research and extension policies of the United States Department of Agriculture and the land-grant institutions as the scientific method of research itself.

According to the records of the Office of Experiment Stations for 1930, 1,196 of the 7,000 active projects at the stations are now being conducted cooperatively by stations or groups of stations and the Department of Agriculture. The number recorded the previous year was 1,086, indicating a net increase of 110 projects, or about 10 per cent. This does not represent the number of new cooperative projects, however, as in the neighborhood of 100 such projects were reported as completed or closed during the year. This record of cooperation includes all of the state agricultural experiment stations: California, Washington, North Carolina, Montana, Wisconsin, Virginia, and Oregon leading with 53, 49, 48, 41, 40, 36, and 36 cooperative projects, respectively. In the neighborhood of 21 major regional projects are in operation which involve the cooperation of groups of stations varying in number from three to more than thirty, and include from one to three Federal bureaus. Of 114 permanent substations, about 40, distributed over 21 states, are operated in cooperation with branches of the Department of Agriculture, while more than 50 Federal stations are maintained independently of state stations, according to the Survey of Land-Grant Colleges and Universities.

At the first meeting of the American Association of Agricultural Colleges and Experiment Stations in 1887,[3] Dr. W. O. Atwater, of Connecticut, read a paper on "Coordination of Work in Experimentation," following which a committee was appointed to further cooperative relationships. In 1899,[4] another committee was "appointed to consider the question of cooperative work of the experiment stations with the Department of Agriculture." In its first report,[5] the committee said: "The attitude of the present Secretary of Agriculture toward closer cooperation between the Department and the stations, and toward more

[3] Proceedings of the First Annual Convention of the Association of American Agricultural Colleges and Experiment Stations. 1887. p. 4.
[4] Proceedings of the Thirteenth Annual Convention of the Association of American Agricultural Colleges and Experiment Stations. 1899. p. 55.
[5] Proceedings of the Fourteenth Annual Convention of the Association of American Agricultural Colleges and Experiment Stations. 1900. p. 58.

systematic arrangements for such cooperation, meets with very general approval from directors of experiment stations."

In 1906,[6] the Association appointed a Commission "to consider the organization and policy that . . . should prevail in the expenditure of public money provided for scientific experimentation and research in the interests of agriculture." In its 1908 report,[7] the Commission stated that (1) "The development of research effort has not been symmetrical and logical." (2) "There has been no well-defined general agreement as to what should be the relative functions of the two classes of agencies, state and national, in the promotion of agricultural research and, therefore, no clear, definite policy has been developed regarding their correlation." (3) "On many questions the harmonious cooperation of the two agencies is essential to the highest efficiency of effort." (4) "Investigation into the business, economic, social and governmental conditions affecting agriculture should be undertaken and should be maintained on a permanent and effective basis." Commenting upon the report, Gifford Pinchot, a member of the Commission said: "One of the fundamental and more pressing needs of science in America is more and better research. I can conceive of no more effective way to promote research in agriculture than to bring about the active cooperation and coordination of existing agencies for the execution of a great general plan. The result will be felt in the increased scope, economy, and efficiency of both state and national organizations."

In 1913,[8] the "Joint Committee on Projects and Correlation of Research," consisting of three members from the Department of Agriculture and three from the stations, was appointed. In its efforts to promote research and research correlation, this Committee has accomplished much, and it continues to function.

In 1919,[9] a resolution was adopted by the Association, as follows: "That we urge the closest possible cooperation at this time among all agricultural agencies and organizations, public and private, in a supreme effort to prepare a more adequate program for the development of American agriculture and country life."

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[6] Proceedings of the Twentieth Annual Convention of the Association of American Agricultural Colleges and Experiment Stations. 1906. p. 61.

[7] Association of American Agricultural Colleges and Experiment Stations, Report of Commission on Agricultural Research. 1908. Pp. 6, 7, 8, 17, 21.

[8] Proceedings of the Twenty-Seventh Annual Convention of the Association of American Agricultural Colleges and Experiment Stations. 1913. p. 115.

[9] Proceedings of the Thirty-Second Annual Convention of the Association of American Agricultural Colleges and Experiment Stations. Jan. 1919. p. 112.

In 1922,[10] the Committee urged "still closer correlation of research between the respective states and the Federal Government." In 1925,[11] the Committee reported that "The Work of the Joint Committee on projects and correlation of research during the past year has in some respects been the most important of any year since its appointment." It had participated in the development of "a great movement for cooperative research on a series of national projects." Following the passage of the Purnell Act in the winter of 1925,[12] a conference of state and Federal administrative officers and investigators was called by the Joint Committee to meet at St. Louis, Missouri, for the purpose of formulating "plans for the promotion and development of cooperative research between the United States Department of Agriculture and the state experiment stations." At that meeting six national cooperative projects, or fields of work, were selected as follows:

1. Distribution and marketing of farm products.
2. The problem of surpluses of farm products.
3. Vitamin content of food in relation to human nutrition.
4. Rural home management studies.
5. Rural social organizations and agencies essential to a permanent and effective agriculture.
6. Factors influencing the production and quality of meat.

The passage of the Purnell Act and the appointment of special research committees in charge of the six national cooperative projects stimulated new interest and activity in cooperative research. They mark the beginning of a broad, general plan of national cooperative research involving definite economic and social objectives. In the five years which have elapsed, much has been accomplished in the number and importance of state and national programs, in the development of a spirit of cooperation, and in the published results. It is realized more generally than ever before that if research and extension are to measure up fully to their great responsibilities, the major problems of agriculture must be clearly visualized and all the powers of modern science, invention, and constructive leadership brought to bear upon their solution. Existing projects and programs must be re-examined at frequent intervals with reference to objec-

[10] Proceedings of the Thirty-Sixth Annual Convention of the Association of Land-Grant Colleges. 1922. p. 160.
[11] Proceedings of the Thirty-Ninth Annual Convention of the Association of Land-Grant Colleges. 1925. p. 184.
[12] Proceedings of the Thirty-Ninth Annual Convention of the Association of Land-Grant Colleges. 1925. p. 184.

tive and relative importance. Ill-designed, or "merely interesting," researches must be weeded out and new ones projected to fill in the gaps. Isolated efforts must be woven into harmonious programs of forward-looking research and extension activity.

The recent reports of the special committees are very instructive and carry valuable suggestions concerning future developments. The Committee on Factors which Influence the Quality and Palatability of Meat reports that 25 state experiment stations are cooperating with the Department of Agriculture in a nation-wide program of meat researches. "After five years of cooperative effort since recognition by the Association," says the report, "it is the opinion of cooperators in the meats project that rather remarkable strides have been made. Not only is active cooperative research by such a great number of independent units new, but the project itself is unique in animal husbandry research. . . . The findings at one station often lead to sounder interpretation of those of another. One investigator's erroneous hypothesis may be the inspiration for another worker's closer scrutiny of his own projects. There is a pooling of ideas, of resources, of ingenuity, of specially-trained services which may be unique, and which may represent a lifetime of training of an individual scientist—all these are the strength of true cooperation."

The Special Committee on Rural Home Management Studies also reports worth while progress in its field. More than 50 per cent of the work promoted by this Committee now extends beyond its original field. The interest originally placed upon management of time and food consumption has been shifted to studies of standards of living, home equipment, and management of finances. The advisory and clearing house functions of the Committee have not been adequately amplified. The report concludes that "the large proportion of independent projects so far undertaken also suggests that it would be well for the Committee to draw up new national projects, or to revise its present ones in order to meet the interests of those states to which existing projects do not appeal, or which have already cooperated in them."

The committee promoting vitamin researches reports that uniform methods are being evolved, and results obtained are being applied to everyday problems of family diet.

Cooperative studies in the field of marketing have made a remarkable growth. Originally local and poorly supported, they now assume national and international proportions. Farmers are beginning to understand something of supply-price relation-

ships, outlooks, and foreign competition. During the year just past, the Committee on Rural Social Organizations and Agencies held an Institute of Methods in Rural Sociological research, which 60 specialists—exclusive of those in Washington—representing 26 states and 2 foreign countries, attended. The work accomplished is already bearing excellent fruit.

At the November, 1930, meeting of the Association of Land-Grant Colleges and Universities, the Joint Committee on Projects and Correlation of Research, in its annual report, commented upon the work of the six national cooperative projects as follows: "In view of the remarkable progress that has been made in agricultural research in the five years which have elapsed since the passage of the Purnell Act, the Committee raises the questions whether the original purposes of the six 'National Cooperative Projects,' or fields of study, selected at the St. Louis conference have not been largely accomplished, and whether these projects should not be discontinued, and major coordinate fields of regional or national cooperative effort defined so as to serve better the national needs, present and prospective."

It will be noted from this report that the Joint Committee recognizes the remarkable progress that has been made in agricultural research since the passage of the Purnell Act but questions whether the present national cooperative projects are sufficiently comprehensive to serve the national needs. The questions raised in the report and in subsequent discussions of it were referred back to the Joint Committee by the Experiment Station Section of the Association for further consideration and report.

The spirit of cooperation is, of course, inherent in the nation-wide system of extension work. It is provided for in the Smith-Lever Act and in uniform memoranda of agreement entered into by the Federal Department and the states. These memoranda provide that neither agency will engage in extension activities except in cooperation with the other. Practically all financial support for extension—whether Federal or local—is contingent upon cooperation. Though extension activities may lend themselves more readily than research to universal cooperation, the fact remains that the advantages of cooperation in research have not been fully exploited.

The state and Federal fields of research and extension have become pretty well defined. In matters of adjustment within the states, the leadership of the agricultural colleges is of primary importance, while in adjustments of broad national significance,

the leadership of Federal departments becomes essential to success. In state programs of advancement, the Federal agencies can help the states, and in national undertakings the state institutions can help the Federal. The place to begin cooperation, correlation, and integration, therefore, is "at home"—in Federal departments and state institutions. It is thought that an agency that has adjusted its own internal relationships is in best position to coordinate its efforts with those of another. The Federal Department of Agriculture, through its directors of Scientific Work and Extension, with the aid and assistance of bureau chiefs and specialists, is endeavoring to perfect its programs of research and extension and to assure logical articulation. As state and Federal agencies round out their respective programs, it may be reasonably anticipated that their integrated efforts will become increasingly significant.

In one of the states the dean of agriculture has made the entire matter of research and extension in relation to each other and to the problem of agricultural adjustment the subject of a research project, of which he is the senior leader. The project is an interesting one because of the teamwork which it implies and the scientific spirit and vision of ultimate objectives behind it. The lessons to be learned should prove very helpful in the development of other adjustment programs.

Those inclined to become impatient with research and extension as means of progress should not overlook the fact that their perfection, like human advancement in general, is a matter of progressive evolvement. The facilities, projects, and programs which seem to satisfy present needs may prove inadequate for future requirements. The relationships which yesterday were intimate enough may seem distant tomorrow. Particular attention should, therefore, be paid to what has been termed the "twilight zone" of the two fields of endeavor. Some kind of articulating mechanism is needed to perfect their functioning. Considerable interest is developing in methods and facilities for determining whether new scientific discoveries can actually be given practical application on the farms and in the lives of rural people. More experimentally ascertained facts are needed concerning farm organization, home equipment and management, standards of living, and community development.

Even at the present time examples of economic experiments in both industry and agriculture are not entirely lacking. Some industries supplement their research departments with "pilot"

factories wherein scientific discoveries may be applied and the products tested practically before putting them on the market. Likewise, the Federal Department of Agriculture and most of the state experiment stations have for many years maintained "pilot" or branch experiment farms, supplementary to their central laboratories, upon which the hypotheses and theories of research specialists have been tested. In intensity, the work of these farms has varied from advanced researches to the more elementary feed, fertilizer, and variety tests. Examples are numerous in which experiments yielding positive results have become very effective demonstrations, attracting widespread interest and influencing the agriculture of the regions in which the farms are located.

In more recent years, many of the stations have also made encouraging progress in the study of the economic problems involved in farm organization and operation. The customary procedure has been to subdivide the state into rather distinct type-of-farming areas within which intensive studies are made by either survey or the cost-accounting method of approach. Following these studies, what amount to pilot farms are selected upon which promising types of organization may be perfected and subjected to further analysis. The patterns of organization which make the best showing over a sufficient period of time are reported and recommended to farmers in the type-of-farming areas. If the comparisons involved in testing these patterns were checked in a manner similar to those of a physical experiment or a variety test, they would become experiments in the usual sense of the term. This testing of types of organization and of enterprises should contribute much to their reliability and to the readiness with which they are accepted by farmers.

In some of the range states, pilot, or ranch economics experiment stations have been established, upon and around which technical and economic researches are conducted almost side by side. Out of these studies profitable types of ranching are being evolved. In one of the states, the business of wheat farming is studied cooperatively by state and Federal agencies on land owned by a benevolent corporation whose profits, if any accrue, go to the state agricultural experiment station. On this pilot farm, various experiments concerning the size of unit, kind of equipment, farm organization, and plan of operation are conducted jointly by the farm economist and the agricultural engineer. Other specialists also contribute to the experiments. In

the operation of this farm, care is exercised to avoid anything suggesting that its success is attributable to chance, or favorable circumstances. To this end, all expenses connected with the experiments and investigations involved are kept separate and apart from the operating expenses and receipts of the farm. The successful patterns which emerge from the tests become convincing demonstrations. They are visited by many farmers and, directly or indirectly, wield an important influence for the good of agriculture and rural life.

The standard of living is also beginning to serve as a nucleus around which to crystallize research and extension programs. From this point of departure the procedure is to determine an attainable standard of living for a particular farm family or community and thereafter determine what forms of farm organization and adjustment will yield the necessary income. Such procedure seems very logical for the reason that people should farm to live rather than live to farm.[13]

Again, the "Outlook," participated in by the states and the Federal Department, is fast becoming a rather constructive instrument for the correlation of effort. It serves as a nucleus around which more and more research and extension activities center. Though considered as extension ordinarily, the Outlook can be of no greater merit than the researches behind it. Back of it are the specific researches of the Federal bureaus and agencies at home and abroad and the state experiment stations. By bringing together their respective contributions, the great body of knowledge necessary for effectual adjustments will be made available to extension workers. The function of extension in outlook work is to help prepare this knowledge in assimilable form and "sell" it to rural groups.

Needless to say, there is no "royal road" to agricultural information. The projects involved in the programs of research surrounding the Outlook will be specific and to the point and otherwise in conformity with sound procedure. An all-inclusive project entitled, "The Agricultural Outlook" does not comply with the requirements of scientific research. The assembling and harmonizing of known facts is a "twilight" function that has long been neglected. It is an inviting field for a rather new type of extension specialist—one who is intimately acquainted with researches under way, on the one hand, and with the needs of

[13] See Standards of Living as a Basis for an Agricultural Extension Program by Madge J. Reese, Senior Home Economist, Office of Cooperative Extension Work. Paper read before Association of Land-Grant Colleges and Universities, November 19, 1930.

extension, on the other. His duty is to scrutinize the findings of research and to present them in suitable form for extension. Material so prepared is especially demanded at the present time in connection with farm management, marketing, and social adjustment campaigns. Probably a larger supply of such talent will arise out of the number of economic extension specialists now being employed by the states and the Federal Department.

As research and extension relationships are perfected, the customary lag between the discovery of important truths and their general adoption in practice will be materially reduced. Without detracting in the least from the scientific merits of projects and programs, they can be designed so as to serve more directly the prospective requirements of extension, which, when broadly interpreted, are identical with the needs of agriculture and rural life. Farmers, as a rule, are more conscious of their present than of their future needs. Their future advancement, therefore, is contingent upon the "capitalization" of their more immediate interests. The strength of an adjustment program is measured by the extent to which it provides for both present emergencies and future requirements. The immediate function of a forward-looking adjustment program is to diagnose the ills of agriculture and to apply restoratives, while its ultimate function is to bring permanent relief by removing the causes of the troubles.

From the deliberate, scientific study of research and extension in their relations to each other and to their major objectives, will eventually come a great general plan of agricultural advancement. Both time and money will be saved, or used to greater advantage, and the creative efficiencies and capacities of American farmers and farm families will be the more quickly diverted from the production of unprofitable surpluses to the realization of remunerative incomes and praiseworthy standards of living and culture.

Summary

(1) Agricultural research and extension have a common objective in the advancement of American agriculture and rural life. Their respective projects and programs are gradually being perfected and integrated into a great general plan of aggressive action.

(2) The major obstacles confronting agriculture and rural life should be more clearly visualized and all the powers of modern science, invention, and constructive leadership brought to bear upon their removal.

(3) Whereas in earlier times, the major economic problem was to produce food and fiber crops in sufficient volume to feed and clothe the people, today it is how to produce more effectively, adjust volume of products to demand, to promote consumption, and to sell to better economic advantage.

(4) Interest in rural economic and social problems has arisen out of the transition from the stage of rural self-sufficiency to that in which production is primarily for the markets. The immediate reason for this interest is found in the fact that this transition has been accompanied by agricultural expansion, low prices, depression, and attendant economic and social problems with which rural people have been ill-prepared to cope.

(5) Though noteworthy progress has been made in the matter of correlating both research and extension as separate forces, much remains to be accomplished in the matters of articulating and integrating them into a great dynamic force and training it upon the major objective.

(6) The Smith-Lever Act of 1914 was the signal for the initiation of a nation-wide movement in cooperative extension. The Purnell Act of 1925 marks the beginning of a broad, general plan of cooperative research involving definite national economic and social objectives.

(7) The place to begin correlation and integration of research and extension is "at home"—in Federal departments and bureaus and in state institutions. The reason is that an agency which has adjusted its own internal relationships places itself in best position to make important contributions when cooperating with others.

(8) Research-extension programs logically center around certain fields of major interest such, for example as a particular commodity, soil improvement, land utilization, farm organization, agricultural outlook, marketing, home management, standard of living, or community advancement.

(9) In one of the states, the dean of agriculture has made the entire problem of perfecting and integrating research and extension programs for the purpose of bringing about needed adjustments between production and demand the subject of a specific research project. This project is a very interesting one because of the teamwork which it implies and the scientific spirit and vision of ultimate objectives behind it. The results to be obtained from such studies as this should tend to clarify thinking with reference to all forms of agricultural adjustment.

(10) More attention is being paid of late to problems of articulation falling within the "twilight" zone between research and extension. "Pilot" or experimental units, such as are commonly employed by industries maintaining research departments for testing the practicability of new scientific discoveries, might be used to greater advantage, for example, in testing patterns of farm organization, home equipment and management, and community development; as well as in the older fields of agronomy, animal husbandry, and horticulture.

(11) The assembling, harmonizing, and adapting of known facts emanating from research to the needs of extension is a twilight function that has long been neglected. Not being research, this is an inviting field for a rather new type of extension specialist—one who is intimately acquainted with both the progress of research and the subject-matter needs of extension.

(12) More and more, the standard of living is serving as a nucleus around which to crystallize agricultural adjustment or readjustment programs.

(13) The "Outlook" is fast becoming a constructive instrument for the correlation of research and extension activities.

(14) Through correlation and integration, the customary lag between the discovery of important truths and their general adoption in practice will be materially reduced and time and money saved. Projects and programs will be strengthened and made more effectual. Both the forces of nature and of human society will be made to work for, rather than contrary to, the interests of the farmer and his family. The growing efficiencies and capacities of rural people will be diverted from the production of unprofitable surpluses and all that they imply to the realization of remunerative incomes, praiseworthy standards of rural living, and cultural advancement.

THE 1930 CENSUS OF AGRICULTURE—NEW FEATURES AND USES[1]

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What is new in the 1930 Census of Agriculture probably will be most clearly perceived if, at the outset, a brief résumé is given of the scope and content of previous Censuses. Such an account of the historical development of Census taking in the United States, even though sketchy, should afford the background necessary for a proper perspective and appreciation of the present Census.

The first attempt to take an Agricultural Census in the United States was made in 1840. For fifty years prior to that time, however, a Population Census had been taken regularly every ten years. This, it will be recalled, was provided for by the framers of the Constitution resulting probably more from a political compromise to save the Constitutional Convention than from any very great appreciation of the value and social significance of such statistical data.

Although starting as a mere periodic count of the population it was not long until a demand arose for a Census much broader and more comprehensive in scope. Prior to the second Census in 1800 two learned societies, the American Philosophical Society, whose president at the time was Thomas Jefferson, and the Connecticut Academy of Arts and Sciences, presided over by Timothy Dwight, memorialized the Congress with this end in view.

No action resulted from these petitions in the Census of 1800 but in 1810 an amendment was added to the Census Act making it the duty of the Secretary of the Treasury, and the agencies under his direction, to take, in addition to the usual information on Population, "an account of the several manufacturing establishments and manufactures within the several districts, territories and divisions."

The Census of Manufactures was repeated in 1820 but was eliminated in the Census of 1830, due to the unsatisfactory nature of the results for the two previous periods. It reappeared, however, in 1840. With the exception of the change in date of enumeration, no marked changes either in scope or method occurred in the Censuses of 1820 or 1830. The date of enumera-

[1] Paper prepared for joint program of American Farm Economics Association and American Statistical Association at meeting held at Cleveland, Ohio, December, 1930.

tion which had previously been the first Monday in August was changed in the 1830 Census to the first day of June. This date remained in effect through 1900. Since that time it has been changed again, much to the confusion of the users of the data.

It was not until 1840 and 1850, particularly the latter year that the real expansion in the Census got under way. The scope was expanded to encompass a wide variety of information pertaining to economic and sociological conditions throughout the country. Under the law of 1840 the Marshalls were instructed to "collect and return in statistical tables, under proper heads, according to such forms as shall be furnished, all such information in relation to mines, agriculture, commerce, manufactures, and schools as will exhibit a full view of the pursuits, industry, education and resources of the country."

This expansion in the scope of the Census was by far the most ambitious which had been undertaken up to this time. Although in itself commendable, the results, due largely to faulty enumeration, were poor. The results were so poor in fact that numerous public protests were made against what were called "its gross errors." Such a protest was filed by a Committee appointed by the American Statistical Association, then in its infancy, in the form of a memorial to Congress. The report of this Committee, composed of Edward Jarvis, William Brigham, and J. W. Thornton is of interest, not so much for what it contained as for the fact that it marks the beginning of a long and fruitful contact with Census work by members of that Association.

As was indicated above, the Census of 1840 contained for the first time an enumeration for Agriculture. The information on this important branch in our economic life was confined to a small section of a single schedule, devoted to manufactures, commerce, agriculture, mines, and fisheries. No return was made for each individual establishment or farm, but the information was enumerated as totals for each district and related to the number of the important classes of livestock, the production of the various grains, hemp, tobacco, cotton, silk cocoons, sugar, wool, wood, and other forest products, such as tar, pitch, turpentine, ginseng ashes, etc. In addition the value of the products of the dairy, orchard, market gardens, nurseries and florists, and value of home-made or family goods were obtained as well as the value of skins and furs.

The inaccuracies in the Census of 1840 again led the Congress to revise the legislation pertaining to the taking of the Census

of 1850 with the view of bringing about the desired reforms. In addition to its new administrative features, the law also extended the scope of the Census and introduced a number of changes. The individual was made the unit of enumeration in the population schedule. The schedules on Agriculture and Industry were of the same type as before though they were somewhat extended.

Acres of improved and unimproved land, the value of farm implements and machinery, livestock, and the value of animals slaughtered were added to the Agricultural Schedule, and the name of the owner, agent, or manager of the farm was obtained.

Following 1850 there were no significant changes either in scope or method until 1880. At this time, however, a real step forward was made in Census taking. The ineffectual workings of the various Census Acts, particularly that under which the Census of 1870 was taken, together with the increased and insistent demands for reform led to a radical revision of the legislation providing for the 10th Census in 1880.

The leader in this reform movement was Francis A. Walker, who had been forced to resign the superintendency of the Census of 1870 through lack of funds to pay his salary. His close contact with the Census of 1870, however, gave him a clear insight into the shortcomings of the administrative features of the previous Acts and he played a prominent part in drafting the new legislation and guiding it through Congress. He also was put in charge of the new Census.

While by this act the scope of the Census was greatly enlarged, its chief significance lies in its new administrative features, particularly with respect to making the enumeration. The enumeration procedure introduced at that time is essentially the same with minor exceptions as that followed at present. The country was divided into supervisors' districts, and they in turn into enumeration districts, and each enumerator was required to report for all the farms in his district.

The principal additions to the Agricultural Schedule included questions, for the first time, on tenure, acreage in principal crops, value of farm including land, buildings and fences, selected farm expenses, such as cost of building and repairing fences, cost of fertilizers purchased, weeks and value of hired labor, estimated value of all farm production (sold, consumed or on hand), milk sold, eggs produced, calves and lambs dropped in 1879, sheep and cattle purchased, sold and slaughtered. There were a total of 100 inquiries on the general farm schedule.

In addition there were a number of special schedules on the production of cereals, details of cotton culture, forest products, fruit growing and fruit trade of cities, cattle feeding and raising, sheep husbandry and wool growing, culture and curing of tobacco, etc. These special schedules, as the titles indicate, were quite elaborate, and dealt with production and cultural practices, soil conditions, varieties, pests and diseases and the like, as well as with the usual information on acreage, production and values.

The act providing for the Census of 1890 differed but little from that of the previous Census. Some new inquiries, however, were added to the Agricultural Schedule. Information on land under irrigation was obtained for the first time. The questions on land utilization were expanded to include the acres in the farm. The information on crops, particularly for hay, small fruits, and sugar crops, and on dairy and poultry products was much more complete. One inquiry on farm facilities, number and capacity of silos, likewise was included, as was the address and color of the farm operator. One other notable feature was the use in this Census for the first time, of the Hollerith electrical tabulating system.

The general belief that in the two previous enumerations an attempt had been made to collect too many data, led to a smaller number of inquiries on the schedules of the 1900 Census. The principal change toward expansion in the Agricultural Schedule related to the livestock inquiries. They were expanded to show certain classes of livestock classified by age groups.

In the Census of 1910 the scope was again extended. The individual schedule was used as in 1900. Information on the age and race of the farmer and on the period of occupancy were added; also information on mortgage indebtedness was included for the first time. The inquiries on farm expenditures likewise were expanded, and the quantity and value of the various crops sold were shown. There was no separate schedule for livestock on ranges, it being reported with livestock on farms on the regular schedule. A special form was used for the enumeration of livestock not on farms or ranges. Special schedules were also devised for plantations, for florists establishments and nurseries, and for a number of special investigations.

The scope and content of the Censuses of 1920 and 1925 are familiar to all of you and need but little discussion. Suffice it to say that the principal changes over previous enumerations related to the status of the farm operator, land utilization, farm facilities, mortgage indebtedness, age of the different classes

of livestock, irrigation, and details on the several crops. The inquiries relating to all of these items were considerably expanded. New inquiries also appeared for the first time on Farm Drainage and on Cooperation in marketing. The inquiries on Drainage were dropped in the 1925 Census, however, but Farm Taxes were added.

With this rough sketch of the scope and content of previous Agricultural Censuses in mind we are now in a position to understand better just what new features are included in the 1930 Census.

The same tendency to expand the scope of the Census manifested so many times in the past continued in the 1930 Census. The preparation of the General Farm Schedule to be used in the enumeration was begun in June 1928.[2] A tentative form of the schedule was prepared and distributed to officials of the Department of Agriculture, State Agricultural Colleges, and other interested agencies. More than 2,000 requests for additional inquiries were received. After numerous conferences it was finally decided to confine the enumeration to 16 schedules: the general farm schedule; 2 supplemental schedules for fruits and nuts; 2 schedules for incidental agricultural production and livestock, poultry and bees not on farms or ranges; 2 special schedules for sheep for use in 13 western states; 2 schedules for irrigation; 1 schedule on drainage and 6 schedules on horticulture.

The general farm schedule includes a total of 233 inquiries, making it the most comprehensive which has been undertaken up to this time. In addition to the usual inquiries on the distribution of farm acreage, values, debt, taxes, crops, livestock, farm facilities and the like, obtained in previous censuses, a number of inquiries were included which are new to the Agricultural Census.

Probably the most significant of these new inquiries relate to the value of products sold. A series of questions were included with the view of obtaining the amount of money received from the sale of the various crops, livestock, livestock products, forest products, the estimated value of the products of the farm consumed by the farm family, and the receipts from boarders, lodgers, campers, etc.

The inclusion of these questions provides for the first time a means of obtaining by a complete census the gross income of agriculture as reported directly by farmers. By means of simple cross classification tables it will be possible to relate income to

[2] Annual Report of the Director of the Census for the Fiscal Year Ended June 30, 1930.

the various factors affecting it and to show gross income by areas and by different prducing groups, obtaining thereby a picture of the relative economic status of farmers and farming in different parts of the country.

Heretofore all classes and types of farms have been thrown together into unclassified totals, making it impossible except in a general way, to determine the areas following particular lines of production or to determine the investment, production, and income of distinct producing groups. With this information as a basis all of the farms in the country are now being classified into distinct type groups according to their major source of income. This classification of farms by type on an income basis when mapped geographically will give a somewhat different picture of the distribution of types of farming than is obtained by the usual method of classifying types by township or county group totals. It will be possible by this scheme of classification to segregate areas on the basis of the number of farms of a given type found therein and furthermore to indicate the relative importance of such other types as exist in the same area.

Due to the fact that a 12-column punch card was used it was possible to code only 12 major types of farms. The following types are being classified: general, cash grain, cotton, crop specialty, fruit, truck, dairy, livestock, poultry, ranch, self-sufficing, and abnormal.

One of these major types, the abnormal, has been subdivided into six sub-types and punched on certain of the cards where extra space was available. The term "abnormal farm" obviously does not lend itself to a very rigid interpretation since its meaning will depend upon what particular concept of "normal" is in mind. As classified it will include such establishments as institutions and country estates, horse farms, feed lots, livestock dealers, boarding and lodging farms, and forest product farms. In addition there is included that large class of suburban or part-time farms termed "amphibian" which come within the Census definition of a farm but are really only places to live used by persons engaged in occupations other than farming. Farms for which information is incomplete are also classified separately under this abnormal group.

This sub-classification of the abnormal farms into sub-types provides a basis for determining just how significant this kind of farm is in different parts of the country: their number and location, area, production, and value, in short how large they bulk in the total agricultural picture.

By segregating these off-color, off-type farms a much better idea will be gained of what is really a bona fide farm. In past Censuses this class of farm has been a serious source of trouble in interpreting farm Census data in particular areas. Their inclusion with other farms has distorted the totals and averages, particularly with respect to values, size, and organization features of the farm yielding results oftentimes unreal and misleading.

Thus, this classification of farms into distinct type groups will yield results much more precise and intelligible than have heretofore been available. They will be of particular value in interpreting outlook reports, defining more clearly the limits within which generalizations are permissible. Tables showing the significant relationships between type, on the one hand, and the distribution of farm acreage, property values, income, size of farm, color and tenure of operator, et cetera, on the other, will be presented and should prove of great interest and value to both research and extension agencies in the agricultural field.

Another new feature in the 1930 Census which should prove of considerable interest and value particularly to those engaged in land utilization and type of farming studies is the publishing of certain of the basic data by townships or minor civil divisions. The data on the distribution of farm acreage into harvested crop land, idle and fallow land, pasture, woodland, and all other land in farms and on value of land, buildings, machinery and equipment, and farmer's dwelling already have been authorized to be published by minor civil divisions. The joint committee of the Department of Agriculture and the Bureau of the Census has recommended that the number of selected classes of livestock and poultry, acreage and production of the important crops and value of products also be tabulated in a similar way but whether they will be is still uncertain. Presumably it will depend upon the time and money available for making such tabulations.

The data on the distribution of the farm area and value of property by minor civil divisions together with the added new information on rotation pasture and terraced land will provide a much more satisfactory basis for land utilization studies than have been available from previous Censuses. Relating these data to soil, topographic and climatological conditions it should be possible to obtain a better understanding of the factors underlying and contributing to the geographic distribution of types of farming in local areas and in the United States as a whole.

To the county agent these data also will provide a basis for

a better understanding and appreciation of the conditions and problems in local areas. He will be better enabled thereby to fit his program to the conditions prevailing.

Still other added features to this year's Census are the separate enumeration for the first time of the value of the farmer's dwelling and additional detail on the status of the farm operator. Relating the value of the dwelling to the color and tenure of the operator, to the value of products, and to the type of farm should disclose information of particular interest to the sociologist and throw additional light upon the human problem in farming. Furthermore, information as to the occupation of the farmer and the days spent off the farm for pay at jobs not connected with the farm will give some indication of the extent to which farmers engage in activities other than farming.

The information on farm machinery and facilities also has been extended to include the number of combines and electric motors in addition to the number of automobiles, trucks, tractors, and gas engines. These data, however, will show only roughly the extent to which agriculture has become mechanized and the rate it is underway since there is no indication of the size or horse power rating of the different machines. A mere comparison of number of machines is likely to be misleading.

The questions on cooperation in marketing indicating the value of products purchased and sold are the same as in 1920 and 1925. In the tabulations, however, the value of products sold cooperatively will be related to the total value of all products of the farm, thereby indicating the percentage of the total sales which are of a cooperative nature.

In addition to the foregoing, other new features in the 1930 general farm schedule include inquiries on purchases and sales of livestock, number of cows of beef or dual purpose breeding milked in 1929, cows milked daily and daily milk production, daily egg production, baby chicks bought, turkeys, geese, and ducks raised (in 1920 Census the number on farms was reported), hives of bees on farms or elsewhere owned, acres and quantity of durum wheat harvested, acres in sweet clover pasture, and acres in corn, spring wheat, and winter wheat planted or to be planted for harvest in 1930. For the first time, also, the acres in individual crops irrigated and non-irrigated grown on farms reporting irrigated land will be separated. The quantity of the more important kinds of forest products cut on farms in 1929 for home use or for sale also will be shown. Likewise the amount expended for the purchase of electric light and power, farm im-

plements and machinery, the quantity of commercial fertilizer, and the number of days of labor hired in 1929 will be included for the first time.

All of these new inquiries will help to round out the facts on agriculture, yielding information essential to a better understanding of conditions throughout the country. The number of cows of beef or dual purpose breeding that were milked will permit a separation of the milk production of dairy and beef cows and furthermore will afford a basis for indicating the number of beef cows milked on dairy farms. The number of cows milked daily and daily milk production also will afford a rough basis for checking the total milk production reported for the year. The same is true with respect to daily egg production. The average number of eggs or gallons of milk produced daily at time of enumeration are probably more reliable than estimates for the year. In using the results, however, due allowance must be made for seasonal influences.

In using the information on the quantity of different classes of forest products cut in 1929 it should be observed that these data will not necessarily bear a very close relationship to the value of forest products sold due to the way in which the inquiry on value is worded, "Value of Forest Products Sold in 1929." From this wording of the inquiry we cannot be sure whether the values reported show the total value of all products cut and sold or to be sold in 1929, only a fraction of total amount sold, or the value of forest products cut some other year and sold in 1929. Furthermore, caution must be observed in comparing the total value of forest products reported in the 1930 Census with the value reported for previous Censuses due to the fact that the value of forest products sold on the stump is not shown in the 1930 Census.

Certain inquiries were dropped from the 1930 general farm schedule which had appeared in previous Censuses. These inquiries include the number of young animals raised in 1929, the acreage in timothy hay, and the estimated value of house or room rent and board furnished farm laborers in 1929.

There remains time to mention but briefly the new features in the other schedules used in the agricultural enumeration.

At the urgent request of the fruit and nut growers two special schedules were prepared for making the enumeration on fruits and nuts. These schedules are supplemental to the general farm schedule and were used in all counties in California and Florida and in the commercial fruit counties in Arizona, Idaho, Oregon,

Washington, Alabama, Louisiana, Mississippi, and Texas. These schedules include inquiries on acreage, number of bearing and non-bearing trees of each fruit, nut and grapes; also the quantity of each product harvested and sold. Oranges and grapefruit are reported by important varieties and grapes by three types—table, raisin and juice. These two schedules thus extend the information for the different fruits and nuts grown in these regions far beyond that obtained for any previous Census.

Because of the migratory nature of much of the sheep-ranching in the West it has always been difficult to locate migratory flocks and to allocate them to their proper geographic units. With the view of guarding against errors of omission, duplication and improper allocation in the enumeration of 1930, the Bureau of the Census in cooperation with the Department of Agriculture secured lists of sheep owners from various sources covering a total of 438 counties. Supervisors and enumerators in the districts covered were supplied with copies of these lists. In addition two special schedules were drawn up: one, an enumerator's sheep record on which was to be indicated the county in which the sheep were on April 1, 1930, and the county in which they ranged during the greater part of the year; also a summary of the information as reported on the general farm schedule. The other was a special sheep schedule to be sent to owners of sheep in cases where the enumerator failed to get the record directly from the owner. It is hoped that this new enumeration procedure will yield more satisfactory results as to sheep on ranches than have been obtained in the past.

The two special schedules for enumerating incidental agricultural production, not on farms or ranges, were also expanded to include in addition to the usual data on cattle, horses, and hogs, information on poultry and bees and on crops of all kinds including fruits, vegetables, plants and flowers produced on places not classified as farms. Furthermore, these establishments are being classified according to type of establishment and occupation of operator.

The returns from these two schedules will show how important is the incidental agricultural production in different parts of the country. They will be of particular value also as a check upon changes in the number of farms. Due to a slight change in the wording of the instructions for taking the rural population it is possible that some places which have been enumerated as farms in previous Censuses were not so enumerated in 1930. As a check on this, provision has been made for tabulating the in-

cidental schedules so as to separate those which conform to the Census definition of a farm from those which do not.

Then, finally, there are the schedules on irrigation and drainage and on horticulture. The first two are not new to the Agricultural Census, but the ones on horticulture are being used for the first time. In view of the fact that the inquiries on horticulture in the general farm schedule are limited both in number and scope, the various trade organizations and other interested agencies requested that a special horticultural census be taken by means of a mail questionnaire. Accordingly, six schedules were prepared: one each for florists, nurseries, bulbs, seeds, mushrooms, blueberries, and huckleberries. Through the cooperation of the Department of Agriculture and other agencies a mailing list of approximately 75,000 names was obtained to which schedules were sent.

Thus with this final brief discussion of the horticultural schedules has been covered the important new features of the 1930 Census of Agriculture. Probably the most effective way to summarize the discussion and at the same time indicate just what is included is to present a list of the result slips and count sheets which have been prepared. They are as follows:

Result Slips and Count Sheets for 1930 Census of Agriculture

Result Slips:

Farms and acreage by:
- (a) Minor civil divisions
- (b) Size of farm
- (c) Color and tenure of operator
- (d) Type
- (e) Abnormal farms by subtype

Acreage, value, mortgage debt, and charges for farms operated by full owners and part owners by specified groups

Acreage and value of farms operated by full owners reported free from debt by color of operator and specified codes (Code: I, No farm land owned elsewhere; 2 and 3 farm land owned elsewhere)

Acreage, value, mortgage debt, and charges for farms operated by full owners, reporting debt, by color of operator and specified codes and groups (Code 4—No farm land owned elsewhere
- A. Reporting debt and charges
- B. Reporting debt and no charges
- C. Reporting charges and no debt

Codes 5 and 6—Farm land owned elsewhere
- A. Reporting debt and charges
- B. Reporting debt and no charges
- C. Reporting charges and no debt)

Acreage and value of mortgaged farms operated by full owners not reporting amount of debt, by color of operator and specified groups (Code 7—No farm land owned elsewhere. Code 8 and 9 farm land owned elsewhere)

Acreage, value, and taxes of farms operated by full owners and part owners by specified groups
- A. Reporting total taxes and real estate taxes
- B. Reporting total taxes and no real estate taxes
- C. Reporting real estate taxes and no total taxes

Acreage, value, and amount of taxes on all farm property and real estate, for farms operated by full owners, reporting real estate taxes (Codes 1, 4, and 7—No farm land owned elsewhere) by tax groups and size of farm.

Acreage drained and irrigated, by irrigated and non-irrigated lands (19 states only)

Acreage and cash rent by occupation of farm operator, by specified tenure groups

Cash tenants reporting and not reporting amount of rent and other tenants, by relationship to landlord

Value of property by:
- (a) minor civil divisions
- (b) size of farm
- (c) color and tenure of operator
- (d) type of farm
- (e) abnormal farms by subtypes

Acreage and values by race of operator, by major tenure groups

Acreage and values by irrigated and non-irrigated lands by major tenure groups (19 states only)

Farm expenditures by color and tenure of operator

Days of other occupation by specified groups

Specified farm expenditures by type

Automobiles and farm machinery by color and tenure of operator

Value of products sold and purchased cooperatively by color and tenure of operator

Value of products sold cooperatively and value of all farm products by color and tenure of operator

Specified classes of horses and mules by type of farm

Asses and burros, hogs and pigs by type of farm by size

Specified classes of cattle by type of farm

Sheep on hand and wool produced classified by two types of farms—ranches and all other farms

Goats and mohair classified by 2 types of farms—ranches and all other farms

Cows and heifers born before 1928; cows and heifers milked, daily, and daily milk production by type of farm

Total cows milked, beef cows milked and milk produced by type of farm

Total milk produced and sold classified by 2 types of farms—dairy and all other farms

Chickens on hand, raised and sold, baby chicks bought, and eggs produced and sold by specified groups and by 2 types of farms—poultry and all other farms

Movement of farm population by color and tenure of operator

Value of products of farm by:
- (a) color and tenure of operator
- (b) type of farm

In addition to the foregoing Result Slips showing cross tabulations, others have been prepared for making straight tabulations for all items on the various schedules. There are also 32 Result

Slips for tabulating the irrigation data and 35 for the drainage data.

Count sheets:

Size of farm by color and tenure of operator
Type of farm by size of farm
Type of farm and value of products by color and tenure of operator
Size and type of farm by value of products
Size of farm and value of products by sub-types of abnormal farms
Farms reporting land irrigated by color and tenure of operator, size and type of farm and value of products (19 states only)
Farms reporting values of buildings, implements and machinery, race, age and occupancy by color and tenure of operator
Specified races by type of farm
Farm expenditures by color and tenure of operator
Farms reporting autos and farm machinery by color and tenure of operator
Farms reporting facilities, roads, and cooperation by color and tenure of operator
Farms reporting specified classes of horses, mules, asses, burros, hogs and pigs, and cattle by color and tenure of operator
Farms reporting milk and beef cows on hand and cows milked by color and tenure of operator
Farms reporting dairy products by color and tenure of operator
Farms reporting chickens and eggs by specified groups
Farms reporting sorghums by irrigated code
Farms reporting crops of 1929 sold or to be sold, by color and tenure of operator
Farms reporting crops planted or to be planted for harvest in 1930, by color and tenure of operator
Farms reporting corn by color and tenure of operator
Farms reporting corn by irrigated code (19 states only)
Farms reporting value of products of farm by color and tenure of operator
Farms reporting movement of farm population by color and tenure of operator
Farms reporting dairy products and specified classes of livestock by color and tenure of operator
Farms reporting specified crops by color and tenure of operator
Farms reporting:
(a) specified classes of land
(b) rotation pasture, terraced and drained land
(c) purchases and sales of horses and mules
(d) purchases, sales and slaughter of calves, cattle (excluding calves), sheep and lambs, hogs and pigs
(e) geese, ducks, and turkeys raised, bees on hand and honey produced
(f) maple sirup and sugar made
(g) forest products
(h) nurseries, greenhouses, hothouses, etc.

These tabulations are now being made, checked and critically analyzed for final publication. The plan of publication is to issue first four series of state bulletins, each with summary for the United States by states.

(1) Individual state reports by counties and Minor Civil Divisions showing the number of farms, farm acreage, value of farm land, buildings, implements and machinery.

(2) Individual state reports by counties showing the number of farms, farm acreage, and farm values, tenure and color of operator, number of each of the principal classes of livestock, and acreage and production of selected crops, including vegetables grown for sale.

(3) Individual state reports by counties showing farm debt, taxes, expenditures, machinery and facilities, cooperative marketing and purchasing, movement of farm population, sheep, goats, bees, registered livestock, livestock products, miscellaneous crops, crops sold, crops planted for harvest in 1930, fruits, nuts and forest products and value of farm products.

(4) Individual state reports by counties showing statistics of farms classified by type of farm and value of products.

In addition there will be individual state reports on irrigation and drainage and special bulletins on fruits and nuts in California and Florida and selected counties in eight other states, on incidental agricultural production, vegetables grown for sale, and value of farm gardens, farm animals, and horticulture.

There also will be four U. S. volumes:

Vol. 5. General Report and Analytical Tables

Vol. 6. Reports for States with Statistics by Counties

Part 1. Northern States

Part 2. Southern States

Part 3. Western States

(This volume will be made up of the second, third, and fourth, series of state bulletins.)

Vol. 7 Irrigation and Drainage

Vol. 8. Farms, Farm Acreage, and Property Values by States, Counties, and Minor Civil Divisions.

(This volume is made up of the first series of state bulletins.)

The exact date of issue of these publications is uncertain, but it is hoped to have the first 4 series of state bulletins in print by the end of 1931 or early in 1932, and the volumes and monographs by the end of 1932.

FUNCTIONING OF THE FEDERAL INTERMEDIATE CREDIT BANKS[1]

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The Agricultural Credits Act of 1923 in providing for the federal intermediate credit banks did not state specifically the purpose of Congress in establishing the federal intermediate system of credit. No doubt it was intended to provide a wider and more dependable market for agricultural and livestock paper with maturities adapted to the requirements of agricultural enterprises. The law as amended states that all loans and discounts are to be for agricultural purposes or for the raising, breeding, and fattening or marketing of livestock, and shall have a maturity at the time they are made of not more than three years. The limitation of the original law that no loan should have a maturity of less than 6 months was removed by amendment, approved June 26, 1930.[2] The frequently recurring stringency in credit for operating farms, sometimes in an entire region but more frequently in scattered districts or communities, has served to maintain the interest of farmers in the possibilities of this source of credit.[3] Price inflation and deflation, bank failures, marked fluctuations of deposits in strictly rural banks and the acceptance by rural bankers in increasing numbers of the policy of diversified bank loans, are factors which may result in capital not flowing freely to all rural districts in sufficient volume to meet the seasonal credit needs of all farmers entitled to credit.

The purpose of this paper is to outline the extent to which the federal intermediate credit banks and the institutions eligible to connect agriculture with these banks have functioned and to suggest certain modifications needed to make the potential service of these banks more readily accessible to farmers. The intermediate credit system has functioned to provide credit to cooperative marketing associations and to provide individual farmers with credit for operating their farms. These two distinct types of credit services will be considered separately.

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[1] Paper read at twenty-first annual meeting of the American Farm Economic Association, Cleveland, Ohio, December, 1930. Research paper 224, Journal Series, University of Arkansas.
[2] S.4287—71st Congress.
[3] From October, 1928, to October, 1930, demand deposits declined about one-third in banks that were members of the federal reserve system and located in towns of less than 15,000 population in 21 agricultural states. Federal Reserve Bulletin, October, 1930, p. 613.

Credit for Marketing

The loans extended to cooperative marketing associations are based on warehouse and shipping receipts covering staple agricultural products and are therefore not available until after the production of agricultural commodities has reached the marketing stage. During the 7-year period from 1923 to 1929, credit to the extent of $471,100,000 was extended to cooperative marketing associations in the United States (Table 1). The purpose of this credit has been largely for making advances to members on commodities delivered to the associations. The total membership of all associations served by the intermediate credit banks to December 31, 1929, was 960,441. Cooperative associations marketing cotton have used the intermediate credit banks more liberally than those marketing other commodities. Sixty-three per cent of the original loans made during the 2-year period 1928-29 were on cotton, as compared with 11 per cent on wheat, barley, and rye, 12 per cent on raisins, prunes, canned fruits, and vegetables, 8 per cent on wool and mohair, 4 per cent on rice, and 2 per cent on all other commodities.[7]

TABLE 1.—CREDIT ADVANCES OF THE INTERMEDIATE CREDIT BANKS, 1923–1929, UNITED STATES[4]
(000 omitted)

Year	Direct loans[5]	Discounts[6]	Total	Total outstanding Dec. 31
	Dollars	*Dollars*	*Dollars*	*Dollars*
1923	34,700	9,400	44,100	42,700
1924	57,100	33,400	90,500	62,300
1925	124,200	53,500	177,700	80,100
1926	102,900	73,500	176,400	92,400
1927	55,000	87,200	142,200	75,900
1928	53,600	82,100	135,700	80,100
1929	43,600	90,600	134,200	73,400
Total	471,100	429,700	900,800	506,900

[4] Data taken from Annual Reports, Federal Farm Loan Board. Porto Rico not included.
[5] Includes renewals. Original loans were $298,924,367.
[6] Includes renewals. Original discounts were $290,647,714.

The credit extended to cooperatives by the federal intermediate credit banks has been of valuable assistance directly, and indirectly through increasing the confidence of lending agencies in the financial reliability of cooperatives with the result that credit has been more readily available to them through other sources than it otherwise might have been. Marked improvements have been made in the standardization of warehouse receipts for staple commodities. The number of staple agricultural

[7] Thirteenth Annual Report, Federal Farm Loan Board, p. 79.

commodities eligible as security for warehouse receipts has increased as well as the number of organizations through which they are handled. The elimination of the 6-month's minimum maturity requirement for loans and discounts should result in the credit from intermediate credit banks being more adaptable to the needs of cooperative marketing associations and more widely used than formerly, especially by associations where the time between receipt and sale of product is commonly for periods of less than 6 months. Prior to the adoption of this amendment, associations marketing dairy products and perishables had not been able to use loans from the intermediate credit banks for any considerable part of their credit requirements.

The procedure in arranging for loans is better understood by managers of cooperatives, and less irksome than formerly. In the past, cooperatives have borrowed rather freely from commercial banks, often because credit was needed for short periods and for reasons of policy. The extension of credit, however, has not been limited by the inability of the banks to sell their debentures; the rate of interest on loans to cooperatives has been reasonable and often lower than the rate on loans from commercial banks.[8] It appears that the intermediate credit banks are functioning reasonably well in providing a dependable market through which cooperative marketing associations may obtain credit for making advances to members to the extent of 75 per cent of the value of staple commodities delivered by them to the associations.

With the advent of the Federal Farm Board, the credit available through the intermediate credit banks for the "orderly marketing" of farm products has been supplemented. In addition the Farm Board has made available "facilities loans" to cooperatives. As evidence of low rates of interest in connection with "facilities loans," the following is quoted from a letter written recently by a cooperative marketing association: "About 6 months ago we procured a loan from the Farm Board to retire an outstanding bond issue. The rate of interest paid is 3⅝ per cent. Only recently we have obtained an additional loan to increase our warehousing facilities . . . the rate of interest is 1⅝ per cent."

Several proposals have been made in Congress to enlarge the powers of the federal intermediate credit banks by authorizing them to make loans to cooperative marketing associations for the

[8] For data on sources of loans and rates of interest paid by the Arkansas Cotton Growers Cooperative Association, see "The Status of Cooperative Cotton Marketing in Arkansas," Ark. Exp. Sta. Bul. No. 245, pp. 26-27.

purpose of financing the purchase or construction of physical facilities. Such loans would represent capital investment in fixed assets consisting of creameries, packing plants, canneries, stockyards, warehouses, elevators, cotton gins, compresses, etc. Fortunately this type of financing has been undertaken by the Federal Farm Board rather than the intermediate credit banks. "Facilities loans" are foreign to the purpose for which the intermediate credit banks were organized, and extension of this type of credit might restrict their present usefulness through inter-

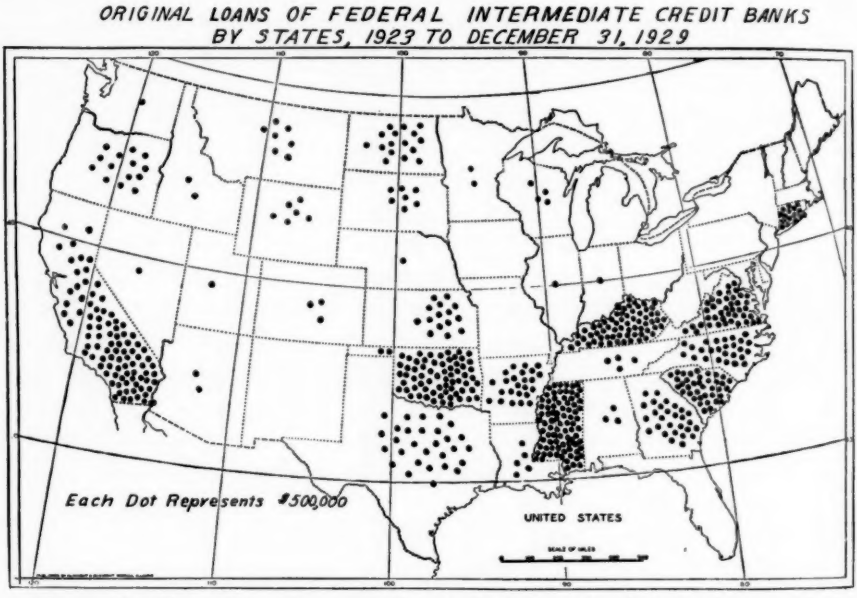
ORIGINAL LOANS OF FEDERAL INTERMEDIATE CREDIT BANKS
BY STATES, 1923 TO DECEMBER 31, 1929
Each Dot Represents $500,000
UNITED STATES

FIGURE 1.—From date of organization to December 31, 1929, the loans made by the intermediate credit banks represent advances made to cooperative associations marketing farm products. The five states in which cooperatives obtained the most credit in order of importance were: California, Mississippi, Oklahoma, Kentucky, and Virginia. To December 31, 1929, there were 17 states in which no cooperative marketing organizations with headquarters within the state had used credit from the intermediate system. These states were: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, New York, New Jersey, Maryland, Delaware, Pennsylvania, West Virginia, Florida, Ohio, Missouri, Michigan, Iowa and New Mexico.

fering with the marketing of their debentures on a very satisfactory basis.

Proposals have also been made "To transfer all functions of the Federal Farm Loan Board to the Federal Farm Board."[9] Available time does not permit an adequate discussion of this

[9] H.R.7133—71st Congress.

apparently unwise proposal. In passing, attention is merely called to the fact that the Federal Farm Board deals only with farmers who market their products by the cooperative method. Since the majority of farmers still market their products by another method, the latter group should insist on keeping the intermediate credit banks under present management. The Farm Board of course does not want to assume their responsibilities.

Farm Operating Credit

Discounts of the federal intermediate credit banks represent largely credit extended to aid in production on farms.[10] It is estimated that the total discounts of the intermediate credit banks in 1929 were about 2 per cent of the total personal and collateral loans made to farmers in the United States.[11] Farmers in the South, the West, and in the spring wheat-belt have used the federal intermediate credit system more extensively than those in other sections (Figure 2).

Many farmers have been perplexed by their inability to obtain a loan as the credit facilities of the federal intermediate credit banks have not been readily and in many cases even remotely available to them. Under the law, an individual can not obtain a direct loan, and no provision has been made whereby a group of farmers may form a local association to be chartered by the Federal Farm Loan Board and through which applications for loans may be filed. There are, however, eight institutions to which a farmer may go for a loan, all of which are eligible to discount his note with an intermediate credit bank or use it as collateral for a loan. Among these the more important are agricultural credit corporations, national and state banks, savings banks and trust companies, incorporated livestock loan companies, and cooperative marketing associations. If farmers have found it difficult to connect themselves with the system, it must be that the institutions from which the federal intermediate credit banks stand ready to take agricultural paper have failed to function properly.

[10] The total original discounts made by the 12 banks from date of organization to December 31, 1929, were only $290,647,714 (Thirteenth Annual Report of the Federal Farm Loan Board, p. 80). The total original and renewed discounts during 1929, including those to Porto Rican banks, were $94,667,407 (Table 2). Data are not available showing how much of the foregoing amount went to Porto Rico.

[11] The estimated volume of personal and collateral bank loans to farmers outstanding December 31, 1920, was $3,869,891,415. (Estimate was made by V. N. Valgren, Bureau of Agricultural Economics, U. S. Dept. Agr. Bul. 1048, Table 1.) Other short-term credit outstanding in 1920 is estimated at $750,000,000, making a total short-term credit of $4,619,891,415. (See Charles H. West, California Agricultural Experiment Station Bulletin 480, p. 16.) Estimates on short-term credit for recent years are not available from the Bureau of Agricultural Economics. Assuming that the 1920 data are still representative, the federal intermediate credit banks were the source of approximately 2 per cent of the short-term credit used on farms in 1929.

As a means of connecting individual farmers with the intermediate credit system, commercial banks have functioned poorly, if at all, in most states. On September 30, 1930, state and national banks in continental United States were discounting with the intermediate credit banks to the extent of only $340,265, while Porto Rican banks were discounting through the Baltimore bank to the extent of $1,975,502.

If the conditions under which country banks would be permitted to rediscount farm paper with an intermediate credit bank were

FIGURE 2.—Discounts made by intermediate credit banks from time of organization to December 31, 1929, represent very largely advances used by farmers for enterprises prior to the marketing stage. The circles are in proportion to the volume of original discounts. The figure shows that the South and the West have used the intermediate credit system as an indirect source of credit rather liberally as compared with the northeastern states. In the states east of the Mississippi River and in District 7 the credit obtained was applied largely to crop production. In Texas and the Western States a relatively large proportion of it has gone into livestock enterprises. (For data on original discounts, see Annual Report of the Federal Farm Loan Board, 1929, page 168.)

made similar to those under which a member bank can rediscount with a federal reserve bank, there would no doubt be a large increase in the amount of farm paper presented for discount.[12]

[12] For discussion of reasons why state and national banks have not functioned see "Organization and Management of Agricultural Credit Corporations in Arkansas," Arkansas Experiment Station Bulletin No. 259.

Considerations from the standpoint of the depositor and that of the Federal Reserve System make such changes highly improbable. Under the present requirements, state and national banks will continue to be unimportant as a means of connecting the farmer with credit through the federal intermediate credit system.

Cooperative marketing associations have not functioned directly in obtaining operating credit for farmers for the reason that cooperatives are required to have a paid-up capital stock in order to obtain advances on the basis of farmers' notes as collateral security and most of them are not organized as capital stock companies.

Agricultural credit corporations and livestock credit corporations are the only institutions which have connected the individual farmer to an important extent with credit through the intermediate credit bank route. Of the original discounts through intermediate credit banks in 1929, 55 per cent came from agricultural credit corporations and 41 per cent from livestock loan companies (Table 2). The essential difference between these two types of credit corporations is that the loans of agricultural credit corporations are largely but not entirely for crop production, whereas livestock loan companies or livestock credit corporations make loans for some kind of livestock production. Because of the lower risks involved, the latter may be permitted to borrow more freely in proportion to their capital stock.

Of the many types of new problems which have confronted the intermediate credit banks, the least progress has been in establishing connections through which their services may be made readily accessible to farmers. This is not a question affecting the standards to be required from individuals in obtaining loans, but how groups of farmers anywhere needing short-term credit may be able to provide the means for bringing their wants to the attention of the federal intermediate credit banks. A logical approach to this problem would be to study how the institutions which have functioned most successfully have been adapted to the varying conditions under which they operate. For this purpose thoroughgoing research by experienced research workers is needed in each type of farming area. Until the results of a number of such studies are available, general conclusions bearing on the problem of connecting the farmer more closely with the federal intermediate credit banks must necessarily be tentative.

One of the most difficult situations in which agricultural credit

corporations operate is in the extension of loans for crop production in the Southern States. Credit extended by the intermediate credit banks for this purpose has reached the southern farmer largely through local agricultural credit corporations and through credit corporations subsidiary to state or regional cooperative marketing organizations. The supervision required in connection with crop loans is a factor limiting the extent of the area to be served by a credit corporation unless operations are restricted to the larger loans of farmers whose credit statements are exceptionally good. In many situations the radius of the district served probably should not greatly exceed 20 miles if it is desired to serve all farmers to whom credit might safely be

TABLE 2.—ORIGINAL DISCOUNTS, 1927-1929, CLASSIFIED BY TYPES OF DISCOUNTING INSTITUTIONS[13]

Types of discounting institution	1927	1928	1929
	Dollars	*Dollars*	*Dollars*
Agricultural credit corporations	35,571,188	28,083,196	32,735,825
Livestock loan companies	22,978,575	25,567,150	24,030,112
State banks	527,511	548,295	2,410,039
Savings banks and trust companies	55,300	161,354	2,611
National banks	49,291	49,524	64,535
Total original discounts	59,181,865	54,409,518	59,243,122
Total renewal discounts	28,107,367	29,158,844	35,424,285
Total discounts, original and renewal	87,289,233	83,568,362	94,667,407

[13] Annual Reports of Federal Loan Board for 1928 and 1929.

extended with inexpensive but adequate supervision. Much of the continuous supervision required may be obtained with comparatively low money costs by a local organization, especially if shareholding is a condition for credit. When the borrowers are neighbors and partially liable for each other's debts, a neglected crop or a bale of cotton ginned outside the community will soon be reported to the manager. Crop production loans made to the small farmers have not been the chief source of the losses sustained by local credit corporations. Under most conditions, restriction of area means a small volume of business and consequently an organization operated efficiently on the basis of a low income.

A careful survey of credit corporations subsidiary to cooperative cotton marketing associations would probably show that those which have been reasonably successful in making collections have not loaned extensively to those borrowers who pay the high rates for credit which are commonly associated with southern agriculture. It is not intended to imply that the services

of these credit corporations may not have been valuable and worthy of encouragement but rather to emphasize the point that, under loaning conditions as they are in the cotton-belt, successful credit corporations operating over a considerable area have not given and probably can not give economically a credit service approximating that which may be given by other credit institutions operating in a restricted area.

At present agricultural credit corporations are organized under state law. A more effective way to give farmers access to seasonal credit through the intermediate credit system would be to provide for a national system of local institutions similar to national farm loan associations by amending the present law. If this were done, charters would beissued to qualify local groups of farmers by the Federal Farm Loan Board. A change of this sort should result in reduced organization expense, uniformity in legal provisions and type of organization, and economy in operating expenses. The present regulation of the Federal Farm Loan Board requiring $10,000 paid-up capital stock by an agricultural credit corporation in order to qualify for discount privileges, should be made elastic and not the same for a community having $40,000 of eligible loans as for a community with $70,000 of eligible loans. In addition to the foregoing, more and better field supervision from the district banks is needed if the federal intermediate credit banks are to respond in a larger way to the credit needs of farmers for crop production.

Some students of agricultural finance have been fearful that small corporations organized by farmers in order to obtain loans through the intermediate credit banks would be fraught with danger to our country banks. They probably would not associate the relatively small volume of loans made by agricultural credit corporations during the last seven years with the frequent failure of country banks. It should be remembered that these corporations do not receive deposits but by carrying part of the load of local loans, they do enable country banks to diversify their loans and investments. Diversification may be as valuable to bankers as they commonly believe it to be for farmers. The volume of deposits is a more important factor in the financial success of a country bank than local loans. Moreover, the costs of loans to farmers in Arkansas in 1929 from local credit corporations varied from 7.7 per cent to 11.2 per cent and in 1930 the cost to farmers who borrowed through an agricultural credit corporation subsidiary to one of the cotton growers cooperative

marketing associations was 8.3 per cent.[14] When the rural banks desire farmers' seasonal loans, the agricultural credit corporation can not compete successfully for them. State and national banks obtain a considerable part of their loan fund without interest. The field for small agricultural credit corporations will usually be in districts where local commercial bank loans are not readily available, as farmers generally prefer to obtain their seasonal loans through commercial banks when they are dependable, even if costs from the latter should be a little higher.

As the problem of seasonal credit and the services offered by the intermediate credit banks are better understood, it seems reasonable to anticipate an increased interest on the part of the country banker in aiding farmers to obtain credit through the intermediate credit system, especially in places where local bank deposits are small or subject to wide fluctuations. Even though a rural bank be well managed, it has often been found difficult for it to succeed and at the same time assume responsibility for all the credit obligations of the community, except during a period of stable or rising farm incomes. An agricultural credit corporation in which borrowers are also shareholders, operated as an adjunct to state and national banks in rural sections, might serve as a medium for meeting part of the local demand for farm operating credit, leaving a larger part of the bank's loan fund for more liquid investments. In addition to enabling the country bank to meet successfully the problem of large fluctuations in deposits, the rediscounting standards required by the intermediate credit banks should tend to place the community on a sounder basis for seasonal credit and give to it the advantages claimed for branch or group banking, while at the same time strengthening the local unit for commercial banking.

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[14] For costs of loans to farmers from agricultural credit corporations, see Appendix, Table 5, Arkansas Experiment Station Bulletin No. 259.

THE FUNCTIONING OF THE FEDERAL LAND BANKS[1]

R. C. ENGBERG
FEDERAL FARM LOAN BUREAU

The Federal Farm Loan System includes two types of banks engaged in the making of long-term loans secured by first mortgages on farm lands. The twelve Federal land banks, together with the 4,656 national farm loan associations, constitute one system. The other group consists of 52 joint stock land banks, three of which are in the hands of receivers and one in voluntary liquidation. While there have been significant and interesting developments in each of these groups during the past few years, it would be impossible to bring within the confines of a single paper an adequate discussion of them all. In view of the facts that the Federal land bank system is not only larger and more comprehensive in its set-up but is also closing a considerably larger volume of loans currently than the joint stock land banks, the discussion has been limited to that system, although occasional reference will be made to the joint stock land banks.

Loaning Operations

Except for the temporary recession during 1920-21 when the constitutionality of the law was being tested, the loaning operations of the Federal land banks expanded rapidly following their organization in 1917. By January 1, 1920, they had $294,000,000 of loans on their books, which constituted 3.7 per cent of the estimated total farm mortgage debt in the United States. Five years later this volume had reached $928,000,000, or 9.9 per cent of the total debt, and by January 1, 1928, the latest date for which a Department of Agriculture estimate of the total debt is available, the volume of loans aggregated $1,156,000,000, or 12.2 per cent of the total debt. Loans of joint stock land banks also expanded rapidly, attaining an outstanding total of $670,000,000 on the latter date, or 7.1 per cent of the total debt. The loans of both Federal and joint stock land banks thus represented 19.3 per cent of the total estimated farm mortgage debt on January 1, 1928.

Although, as will be discussed more fully later, the volume of new loans granted has declined substantially in recent years, the total loans of Federal land banks outstanding on September

[1] Paper read at twenty-first annual meeting of the American Farm Economic Association, Cleveland, Ohio, December, 1930.

30, 1930, nevertheless showed an advance of $34,000,000 over the 1928 figure, thereby bringing the total in force to $1,190,000,000. The total amount of loans reported closed by Federal and joint stock land banks since they were organized to November 30, 1930, has amounted to approximately $2,500,000,000, of which $1,600,000,000 was closed by the Federal land banks.

Effect on Total Mortgage Debt

The total credit granted by these relatively new institutions is a very substantial sum, especially when it is recalled that the total farm mortgage debt of the country is less than four times that amount. In view of this fact and that the total mortgage debt of farmers has expanded rapidly since the entry of these loaning agencies into the field it may appear that the effect of the establishment of the system was to give farmers too much credit and to make it easier for them to get further into debt. It may be of interest, therefore, to inquire briefly into the extent to which the loans of Federal as well as joint stock land banks may have contributed to the enlargement of that debt.

In considering this question we need to know first, the magnitude of the increase of the indebtedness and second, what part of the loans of the land banks was merely a replacement or refunding of existing loans and what portion represented what may be termed "new debt." There are no satisfactory estimates of the total debt at the time the first banks were organized in 1917. Department of Agriculture estimates, however, indicate that from January 1, 1920, to January 1, 1928, there was an increase in the total debt from $7,858,000,000 to $9,469,000,000 or a net addition of $1,611,000,000. During the same period the Federal land banks loaned approximately $1,400,000,000 in the continental United States, and the joint stock land banks loaned $700,000,000, or a total of $2,100,000,000. The applications of the borrowers, however, indicate that about 72 per cent of this total, or $1,530,000,000, was used for the purpose of refunding existing mortgages. The balance, or approximately $570,000,000, represents loans which were not specifically designated by applicants for this purpose. The available information, however, indicates that $220,000,000 of the latter amount was used for refunding debts other than those secured by farm mortgages and consequently does not represent new indebtedness but rather the conversion of existing miscellaneous debt to mortgage loans. The

balance of the loans closed by Federal and joint stock land banks during this period were used about as follows:

Capital stock in national farm loan associations or Federal land banks	$70,000,000
Purchase of livestock, fertilizer, equipment	$640,000,000
Erection of buildings, making other permanent improvements	$80,000,000
Purchase of land	$160,000,000
Total	$350,000,000

The first three items, aggregating $190,000,000, probably can be regarded as definite additions to the farm mortgage debt of the country. The last one, however, requires special consideration. A portion of the loan proceeds used for the purchase of lands undoubtedly represents the refunding of existing loans. A considerable number of lands purchased may have had mortgages on them and the cash obtained from the purchaser was used in part to retire the mortgages. We have no basis for estimating what portion of the loan proceeds was used in this manner.

It appears, therefore, that of the increase of $1,611,000,000 in the total farm mortgage debt from 1920 to 1927, inclusive, some amount less than $350,000,000, or 22 per cent, is represented by loans of Federal and joint stock land banks. In other words, an increase of over $1,261,000,000 in the total debt arose from borrowings from sources of credit other than the newly organized land banks during the period under consideration. The conclusion seems justified, that the expansion of the indebtedness was a consequence of current economic conditions, rather than the introduction of a new mortgage credit system. We do not know all the reasons why it was necessary or desirable for farmers to borrow additional funds secured by first mortgages during this period. It should be recalled, however, that in some of the years but more particularly in 1920 and 1921 the trend of commodity prices was downward. Under such circumstances farmers found it difficult to liquidate short-term borrowings made at the beginning of the crop season from the harvest returns several months later and which were considerably less than was anticipated when the loan was made. The commercial banks which made the advances in many instances acquired farm mortgages as security for such loans. Naturally, these banks desired to have such mortgages refunded as soon as possible and as a result a large amount of the loans of the Federal and joint stock land banks refunded mortgages held by commercial banks.

As far as the other refunding loans were concerned, the advantages offered by the new institutions in the form of lower interest rates and longer terms on an amortization basis induced many farmers to refinance existing mortgages on the new basis.

There are, on the other hand, certain facts which indicate that these banks have been and are elements in the situation tending to facilitate a reduction of the total debt. It should be recalled that prior to the advent of the farm loan system farm mortgage loans generally were made for relatively short periods such as five or three years and in some cases even one year. There was no systematic effort to make reductions in the debt and the loans usually were renewed at the expiration of the term for the same or larger amounts. Under the terms of the farm loan act all of the loans of the Federal and joint stock land banks, however, call for annual or semi-annual payments, which cover not only the accrued interest but an amount to apply on principal which will retire the loan within the term agreed upon, which may not be less than five years nor more than forty years. Under this amortization basis borrowers are constantly reducing the principal of their loans. Loans made between 1917 and 1920, for example, now have been reduced by 13 to 18 per cent if the installments have been paid regularly. The average reduction of all Federal land bank loans remaining on the books is approximately 9½ per cent. In addition about 16 per cent of the total loans placed on the books have been paid in full or replaced by other notes to the same bank. Field reports indicate that a number of the life insurance companies also are offering loans with the amortization feature. It would seem, therefore, that the introduction of a systematic plan for making payments on the principal of mortgages and the competitive influence of this amortization plan on the type of loans offered by other loaning agencies is an important factor operating to prevent further expansion of the debt and even to reduce it.

Present Rôle in Mortgage Loan Field

As indicated earlier in this paper, the volume of new loans closed by the Federal land banks has declined sharply in recent years. The peak in new loans was reached in 1922, when $224,300,000 were put on the books. Although the volume of loans closed declined in subsequent years, they still continued to exceed the total of loans removed entirely and the amortization payments made on principal until about the middle of 1929.

Since the latter date, reductions have exceeded new business so that there has been a decline in the net amount outstanding from $1,205,882,000 on June 30, 1929, to $1,191,705,000 on September 30, 1930, or $14,177,000.

A number of reasons may be suggested for this decline. The trend of closings parallels closely the trend in applications forwarded to the banks by the national farm loan associations and we, therefore, may consider the reasons for the decline in the volume of applications. This decline is attributed in part to a greater appreciation of their responsibility on the part of the associations. The increases in the foreclosures and the realization of what the consequent losses may mean to the condition of the associations and value of their stock, has had a sobering effect on their stockholders and directors. The decline in land values also has reduced the amounts which the associations can recommend and the banks can loan under the law. The decline in applications, however, reflects, in part, a genuine diminution in the demand for this kind of credit. In view of the large volume already refunded, the more urgent requirement for funds for this purpose has largely been met. This is particularly true of loans held by commercial banks which are eligible under the law and which represent desirable risks. The diminution in the volume of farm sales and the fact that a large part of the voluntary sales are made by involuntary owners who accept a first mortgage as a part of the consideration are additional factors in the smaller amount of applications received.

In view of the reduced volume of loans granted, the need of the Federal land banks for new funds has been materially less. From November, 1928, to November, 1930, there was no public offering of bonds, the few sales made representing largely short-term financing. Most of the requirements for loan funds have been met from monies available from amortization and other payments on loans, cash received on real estate sales, and other sources. The most important of the sources just named are the amortization and other payments on loans which aggregated about $40,000,000 in 1930. The banks report that they have ample funds to handle all eligible loans applied for which, in their opinion, warrant approval.

The available information does not indicate the total amount of farm mortgage loans being made currently by all classes of loaning institutions in the field. Such facts and reports as we have, however, lead to the belief that the loans now being closed

by the Federal land banks constitute a very substantial proportion of all farm mortgage credit being extended.

The information available indicates further that except in states such as Minnesota and North Dakota which have set up special farm mortgage credit machinery, life insurance companies now, as in the past, constitute the most important competitor of the land banks. These companies seem to be making fewer loans than formerly. The reports indicate that they are more selective in the territory in which loans are made and in the farms securing them; that a large volume of the loans consists of renewals; that every effort is made to make the renewal at a reduced amount; and that, in the case of new loans, the amounts loaned per acre are substantially less than in former years. Many of the new contracts also are for a longer term, such as 15 to 30 years, and call for amortization payments which will retire the principal during the term agreed on. Furthermore, the outstanding loans of insurance companies seem to be declining quite rapidly. If the 40 companies reporting to the Department of Commerce are representative of all life insurance companies, this decline has amounted to 1.8 per cent in the twelve months ended August 31, 1930. The net outstanding loans of the twelve Federal land banks, on the other hand, declined less than 1.1 per cent during the same period, in spite of the fact that borrowers made regular payments on the principal of the loans. These facts, together with the field reports received, indicate that in relation to the life insurance companies, the Federal land banks are increasing in importance as a source of farm mortgage credit.

It appears further that many commercial banks and farm mortgage companies have withdrawn from the business of making loans on farm lands. In only a few localities are these institutions making loans. Commercial and savings banks in New England apparently are still closing a few loans. In other parts of the country, however, the present principal farm mortgage activity of these banks and mortgage companies is the operation and sale of properties acquired as a consequence of loans previously made. In many instances, of course, they accept notes secured by first mortgages and other liens as part of the consideration in the sales they make.

The volume of loans closed by joint stock land banks also has been sharply reduced. This decline has arisen from the difficulty which the banks have had in marketing their bonds on a satisfac-

tory basis, which has resulted in part from the general conditions in the money market and in part from the impairment in public confidence in joint stock land bank bonds because of the fact that three of the banks have been placed in the hands of receivers. In addition, some of the banks which have been faced with difficult problems have been devoting their energies to the improvement of their condition rather than undertaking to increase the volume of their loans. The law authorizes the banks to purchase their bonds for their own account and provides that when amortization and other payments on the principal of pledged mortgages are used for this purpose the bonds shall be purchased at or below par. Accordingly, a number of the banks have used available funds for purchasing their own bonds which were offered on the market at substantial discounts.

No data are available regarding the amount of mortgage credit being furnished by individuals. It seems probable, however, that the same forces and conditions which have brought about a diminution in the loans made by institutions have resulted in a similar decrease in the loans from this source.

Such information and reports that we have at hand, therefore, indicate that although the volume of loans granted by the Federal land banks has declined in the last few years, for the reasons previously discussed, the decline in the volume extended by other lenders apparently has been still greater with the consequence that these banks now constitute one of the most important sources of new farm mortgage credit. This is particularly true in some areas where the life insurance companies are not making loans and where no special credit institutions have been provided by the state government. The loans granted now by commercial banks in many parts of the South and Far West carry interest rates of 6 to as high as 10 per cent and in addition there may be substantial commissions. In the more competitive sections of the upper Mississippi Valley, the interest rates charged by life insurance companies are more comparable with those of the Federal land banks.

As indicated above, there was no public offering of Federal land bank bonds from November, 1928, to November, 1930. Aside from funds obtained from amortization and other payments by borrowers on loans, cash received on real estate sales, and similar sources, the cash requirements of the banks were met largely by short-term borrowings, principally from the Federal reserve banks. The fluctuations in the market prices of bonds in general

made the question of marketing a new issue very difficult. In studying the situation, and in view of the prevailing conditions, the banks decided to offer an issue of $20,000,000 carrying an interest rate of 4½ per cent and a maturity of three years. This issue was heavily over-subscribed within a few hours.

Loan Policy

The volume of foreclosures during the past few years has demonstrated the necessity of careful attention to, and study of, the loan policy of the banks. In view of the fundamental importance of sound appraisals, much attention has been given to the assembling and supervision of a corps of appraisers representing the best talent available in this field. Another important step has been the expansion of the work of engineer-appraisers. The large percentage of farm lands located in drainage, levee and irrigation districts and the close relationship between the financial condition of such projects and the success of loans on lands located therein, have made it necessary to have at hand careful analyses of the financial and economic condition of these projects. Several of the banks consequently have added engineer-appraisers to their staffs and the appraisal division of the Farm Loan Bureau has employed an experienced and competent man to supervise this work.

In addition, a considerable amount of study of the causes of foreclosures in the past already has been made. The Federal Land Bank of Springfield made a very exhaustive statistical analysis of the whole loaning experience of that bank. Several other banks have done preliminary work of a similar character, some of which has been in cooperation with local agricultural experiment stations.

The main objective of all this work is the development of policies which will insure the placing of sound loans only on the banks' books. The banks feel that the greatest service they can render is to maintain and improve their ability to command funds in the general money market at minimum rates of interest and to make such funds, in turn, available to farmers at a reasonable cost. A necessary prerequisite to both steps of this service is a sound loaning policy. When offering bonds for sale, the banks must be able to present a balance sheet reflecting a strong condition in order to attract funds at a low rate of interest, and if they are to operate on a small "spread," it is necessary to keep

losses and costs of liquidating foreclosed loans to a minimum amount.

In securing sound loans, careful appraisals, of course, constitute an essential step. Aside from improving the group of men on the appraisal staff, constant study is being given in the bureau and the banks toward perfecting appraisal methods and the employment on a more scientific basis of all available information and tools. Such developments include the use of soil maps, the determination of the character of the soil and subsoil, and more careful analysis of the earning capacity and costs of operating the farm. An essential requirement, of course, is ample security. The decline of land values during the past ten years has demonstrated the importance of the provision of the law which limits the amount of the loan to 50 per cent of the value of the land and 20 per cent of the insured permanent improvements. Moreover, the fact that a large majority of these loans are made for periods of 33 and 36 years necessitates an ample margin of security. Experience has shown that economic conditions in any locality may change greatly during that length of time and even before there has been any substantial reduction in the amount of the loan.

The banks are finding that in addition to having careful appraisals and making sure that the prospective loan comes within the legal requirements, it is necessary to give each application a complete credit analysis. The borrower must have a substantial equity in the property, must show a record of financial responsibility and must be a desirable risk. It must appear also that the income from the farm securing the loan under ordinary methods of handling will be sufficient to carry the interest and amortization installments on the loan, in addition to the ordinary living and operating expenses, taxes, etc., of the farmer.

On the basis of the information and experience obtained, the various banks are gradually formulating more specific policies with respect to the amount and maturity of loans that can safely be made under the various agricultural and economic conditions and in the various portions of their respective districts. The variations in these special considerations are so great that it would be impossible to attempt to enumerate them here. As indicated above, however, they are based on the lessons learned in the past and on the study that has been given to the problem and, of course, are designed to safeguard the operations of the banks.

The Problem of Foreclosures

As is the case of practically every institution extensively engaged in the business of making loans secured by farm mortgages, the Federal land banks have had to deal with the problem of foreclosures. Some of these foreclosures, of course, have arisen from mistakes in loaning policy which naturally might be expected in the first few years of operation of new institutions. In addition to such circumstances, the banks have been faced with economic conditions which have imposed a severe strain on even the oldest and most experienced farm mortgage loaning agencies. It is not necessary to describe the conditions referred to; they are well known. As a consequence, the general trend in the volume of foreclosures has been upward during the past few years. During 1930 the situation resulting from falling commodity prices has been aggravated by the drought which occurred over a large part of the country.

The banks do not follow any rule-of-thumb policy as to the time when foreclosure proceedings are instituted following default by the borrower. Each case is studied carefully and handled on its own merits. If it appears that the borrower is likely to be able to work out of the situation, every reasonable opportunity is given for him to do so. If, on the other hand, the borrower is hopelessly in debt, foreclosure proceedings are instituted as the only alternative and the process of liquidation begun. All of the Federal land banks have established organizations for the purpose of handling acquired real estate and every effort has been made to place such assets on an earning basis as promptly as possible, either through sale or lease. It has been the experience so far that, after taking all costs into consideration, less loss is realized if acquired properties are disposed of promptly, although, of course, in such a program no unnecessary sacrifices are made and farms are not sold unless the price obtained is reasonable, in view of all the circumstances to be considered. Moreover, in addition to making any charge-offs necessary to bring the carrying value of properties on hand to the amounts required by the rules and regulations of the board, all the banks that have been able to do so have set up full reserves against all properties to which they have obtained title.

Although the volume of foreclosures and losses absorbed has been substantial, such information as the Board has been able to obtain indicates that the record of the Federal land banks compares favorably with that of other classes of institutions which

have loaned on farm mortgages. Such reports as have come in indicate that in comparison with the volume of loans the real estate holdings of many commercial banks are higher than those of the Federal land banks. More positive evidence has been obtained with respect to life insurance companies. Data compiled from the reports of eight companies holding loans slightly in excess of the total loans of Federal land banks indicate that, in proportion to volume of loans, both the rate of acquirement and the amount of real estate on hand exceeded the acquirements and holdings of the Federal land banks in 1929. The relatively favorable experience of Federal land banks in the matter of foreclosures, together with the rate at which real estate has been sold and the conservative policies followed in the matter of carrying values and special reserves for real estate have kept the amount of real estate included in the combined assets of the twelve banks to a relatively small amount. On December 31, 1930, the latest date for which a published statement is available, only 1.6 per cent of the total assets of the twelve banks represented real estate owned, either outright or subject to redemption.

It seems probable that when the banks have weathered this depression which appears to be one of the longest and most severe which American agriculture has experienced, they will emerge with an experience and background that will enable them to build up extremely strong institutions. The opportunity that the personnel will have had to observe the effects of unsound loan policies where they had been in force and the improvements effected in organization and procedure on the part of the Board, the banks, and the national farm loan associations should furnish a foundation and tradition on which to build one of the strongest agricultural mortgage credit systems in the world.

National Farm Loan Associations

Some of the most significant developments during the past few years have been in connection with the national farm loan associations. These corporations were designed to constitute the foundation units in the Federal Land Bank System. Owned and controlled by farmer-borrowers, they were intended to be the outposts where the preliminary selection of applications would be made. In view of the fact that the associations indorse all loans closed through them, moreover, they constitute the first line of defense in the event that losses occur on foreclosures. With the passage of time and as conditions changed, certain

weaknesses in the manner in which the associations operated were discovered. An adequate discussion of these problems and of the steps which have been taken by the Farm Loan Board and the banks to remedy the situation would require more time than is now available. These questions, however, have been treated very fully in the annual reports of the Board, particularly in the report for the year 1929,[2] so that only a brief reference to them need to be made here.

One of the most important problems has been the loss in income to the associations arising from the decline in the volume of loans closed and the suspension or reduction in dividends by most of the Federal land banks. This has made it impossible for many of the associations to compensate their secretary-treasurers adequately, with the result that the latter, in many cases, have not felt able to devote the time necessary to keep the affairs of the associations in good order. The banks, accordingly, have evolved various plans of compensating these officers for their cooperation in connection with the collection of amortization installments and of taxes and insurance premiums which have been advanced by the banks for the protection of their loans. Most of the plans provide for a sliding scale of payments which places a premium on the collection of installments on or before the date that they are due. While these plans are still largely in the experimental stage, several banks have reported a noticeable improvement in the attitude and activities of secretary-treasurers in their districts.

Much improvement has been made in the manner in which the affairs of the associations are conducted. This has been accomplished largely through the more thorough and comprehensive examinations made by the board's examiners. Wherever secretary-treasurers have been found who were unfitted for their work, the examiners and the banks have cooperated with the directors of the associations in replacing them with more competent officers.

Another important development has been the formulation of uniform policies with respect to the retirement of capital stock when loans are paid in full by borrowers. A close study of the Farm Loan Act and court decisions bearing upon the matter indicated that when an association had obligations to the bank which it was unable to meet otherwise, the bank was entitled to

[2] See pp. 51 and 62, inclusive. See also pp. 9 and 10 and 27 to 30, inclusive, in the report for 1928.

withhold the proceeds of the capital stock owned by the association when borrowers paid their loans in full. In administering this principle, the banks have classified the associations according to their financial condition, and the policy of the banks with respect to withholding proceeds of the stock when a borrower pays his loan in full depends upon the degree of impairment of the stock of the association and its general financial condition as revealed by this classification.

A further development has been the making of agreements between the associations and the banks as to the manner in which the liability of the associations resulting from their indorsement of the notes will be handled. Under these agreements, the banks set up an account for each association to which are credited any monies otherwise payable to the association, as an indemnity against any loss which the bank may suffer in the final disposition of the property. The bank, moreover, may proceed to dispose of the acquired farms for amounts which, in the opinion of the bank, represent their fair value. If the lands are sold at a loss, the deficiency is charged to the indemnity account; if sold at a profit, the latter is credited to the account to the extent necessary to offset any other losses. This arrangement facilitates the orderly liquidation of the real estate and protects the interests of both the association and the bank.

Summary

While the economic conditions prevailing in agriculture since 1920 have brought many difficult problems before the banks and associations, it seems probable that in the end the effect will be of a salutary nature. The immediate results have been to reveal the weaknesses of many of the initial policies and operating methods. The necessity of competent and non-political personnel, sound loaning policies, and conservative management has been demonstrated and, with the cooperation of the Farm Loan Board, much progress has been made by the banks and associations. While the banks and associations have sustained losses, the system has by no means ceased to function but, on the contrary, is furnishing a substantial portion of the farm mortgage loans now being granted. Their capacity to meet the mortgage credit requirements, moreover, will be strengthened when the lessons learned from past experience and the improvements made as a consequence have had sufficient time to become more fully reflected in the balance sheets of both the banks and associations.

SOCIAL AND ECONOMIC ASPECTS OF LARGE-SCALE FARMING IN THE CORN-BELT[1]

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For some time large-scale farming has been the subject of discussion ranging from bitterest invective to the most extravagant eulogy. So few real facts are known about large-scale farming that so far as I have been able to determine, no one has even ventured to formulate a definition of the term. Until we agree upon some common understanding in respect to the term, "large-scale farming" it seems rather quixotic either to "view with alarm" or "point with pride" to new developments in agricultural production. There seems to be a disposition to call the adoption of new machinery together with the resultant subsequent changes in farm organization "large-scale farming." In fact many persons, who by nature are inclined to look backward rather than forward, and who believe that any change from the practices of their forefathers is not only impractical but positively immoral, seem to delight in crying "large-scale production" upon every occasion when a new technique gives promise of being generally adopted. During these years of agricultural depression, many people who know little or nothing about agriculture have hailed "large-scale farming" long and loudly as the salvation of the farming industry. In consequence there has been a great din and clatter about a development which to a considerable extent is non-existent, at least in the Corn-Belt. Many of the improvements in agricultural technique can be applied as effectively on the small farm of a quarter-section or less as they can upon the large farm. It is not necessary to operate a large acreage in order to reap the benefits from hybrid seed corn, a soil improvement program, and modern methods of breeding and feeding livestock. As yet only a few improvements require a large acreage in order that they may be most effectively used. There are enough of these improvements already worked out, however, to suggest that we are just at the threshold of a series of developments that will give the large farm an advantage it has not thus far enjoyed. Until recently farm machinery has had a very narrow range in its capacity for crop production. Farm implement manufacturers were concerned

[1] Paper read at the twenty-first annual meeting of the American Farm Economic Association, Cleveland, Ohio, December, 1930.

primarily in producing equipment especially adapted to the prevailing size of farms. Consequently, the large farm had few or no advantages over the average-sized farm. Size was perhaps a handicap as a large farm had to use as best it could equipment designed for smaller farming units. It is only yesterday that engineers began to design farm equipment that could be used most effectively only upon large acreages. Up to the present, the prevailing size of farm has been the dominating force in the development of machinery. There are indications now that we are entering a period where machinery will become a dominant force for shaping the size of the farming unit. In this respect agriculture is perhaps a hundred years behind industry. For decades the machine has set the pace in industrial development, and progress has been measured by the extent to which industrial enterprises could take advantage of the economies of machine production. The rapid development of machine production in industry has doubtless been due to the fact that a satisfactory source of power has been available. Until recently no comparable source of power has been available to agriculture. But the perfection of the gas engine has provided a source of power of sufficient flexibility and mobility to afford some measure of assurance to those who expect an adoption of machine methods in agriculture somewhat comparable to the adoption that has already taken place in industry.

The fact that power development in agriculture is of such recent date supports my statement that large-scale farming in the Corn-Belt is almost non-existent at the present time. Other advantages of large-scale production have had to await the necessary technical developments before these benefits could be enjoyed. Economic aspects of large-scale farming in the Corn-Belt, therefore, must be considered in prospect. Statements cannot be made with the assurance which even a small amount of experience with this type of production might give.

Let me digress at this point to suggest a more definite understanding of the scope and meaning of the term, "large-scale farming." This term implies a technique made possible solely because of the size of the farm upon which it is put into effect. In the practice of large-scale farming it is essential that there be a large farm on which to operate, but large farms can, and do, exist without large-scale farming practices. In fact most of them follow practices identical with those used on farms a fraction of their size. Frequently they are not operated as a farm

unit but as a mere collection of individual farms each operating as an independent unit. Because large farms so often follow small-scale practices, they are usually not so profitable relatively, and often absolutely, as a much smaller unit. There is a closer correlation between large-scale production in industry and the size of the enterprise than there is in farming. A large business could hardly exist without practicing large-scale methods of production. A large business in which methods of small enterprises are followed is almost unheard of—indeed large businesses are formed with the sole purpose of enabling themselves to secure advantages inherent in size. In Corn-Belt agriculture there are very few enterprises formed solely to take advantage of the opportunity to put into effect methods of production impossible upon smaller farms. In Iowa I know of only one, and even in that case it is not clear that this was the sole impelling motive. Our large Corn-Belt farms have usually not been formed with this as a motive, nor has the adoption of large-scale methods been essential to their survival. The time has just been reached when methods of production on large farms can differ sufficiently from those followed on small farms to make it desirable to form large farms solely to take advantage of the opportunity to exploit the benefits of large-scale production.

The types of improvement referred to thus far are used entirely in the production of crops. The four-row planting and cultivating equipment, the two-row corn picker, and the combine, all increase the number of crop acres that can be handled per man employed. This last fall witnessed the introduction of the corn-combine, a machine which gives promise of still further increasing the product per man. We have had no corresponding improvement in hay machinery, neither has there been any important improvement of a mechanical nature that can be used in livestock production. The problem encountered in handling livestock on a large scale has not been attacked by the engineers. Although they are doubtless more difficult than are the crop problems, it would appear that there are almost as many problems of economy related to the invention of machinery and equipment for the handling of livestock as for the handling of crops. There is no doubt that at present the crop farmer in the Corn-Belt has an advantage over the livestock farmer in respect to the possibilities of adopting large-scale methods of production. As the adoption of large-scale methods tends toward greater specialization, it maye be concluded that for the present

at least, large-scale specialization will be limited to crop production. The extent of such specialization in the Corn-Belt appears to be somewhat limited. Corn-Belt crop production is primarily feed production, and there are many economies in having the feed consumed on the farms where it is produced. Topography, too, limits the adoption of large-scale crop production methods. Only the more level sections of the Corn-Belt may take complete advantage of the methods now available. The rougher sections, because of the pasture available, may be expected to specialize more completely in livestock production. It is quite possible that large-scale methods employed in the level areas may produce feed-stuff at a cost sufficiently low to warrant farmers in the rougher sections importing their feed and turning a share of their crop-land into pasture. In some sections almost the entire area may revert to pasture. Farms could be consolidated and used to produce feeder stock to be sold to the feed-producing regions.

Prevailing low prices of land in the Corn-Belt make it comparatively easy to adopt large-scale methods of production, and add a further incentive for doing so. As long as land prices are high, there is a tendency to get the largest possible return from the land. In order to do this, the variable costs are somewhat higher than they would be if the variable factors were being worked somewhere near their point of highest physical efficiency. When the annual land charge is high, the largest profit may be made by producing a large quantity per unit of land. Under present conditions, the land charge is lower than it has been for several years, and is still decreasing. As this part of the per unit cost becomes of smaller importance, there is a greater incentive to reduce the per unit variable cost as much as possible, even at the expense of a slightly higher per unit land cost. This can be done by introducing new equipment and new methods whereby a larger physical return per unit of the variable factors may be achieved. Labor costs, particularly, are thus reduced. Once the new equipment is introduced, however, it becomes a fixed investment, but there is a possibility of reducing costs by working this equipment to capacity. If the equipment has a larger capacity for land, additional land may be rented or purchased. If it has an unused capacity for units of products, these additional units may be obtained by better soil management, by better cultural methods. These latter improvements, of course, increase yield per acre, thus tending to reduce land

charge per unit of product. The result of adopting large-scale methods may be a larger product per acre as well as per man despite the fact that the original objective was a larger product per man regardless of the product per acre. The difference in value of land in rolling sections and in level sections may be expected to increase. Large-scale methods will give level land a greater advantage over broken land than exists at present. Whereas rent has been paid largely because of differences in fertility and location, it may now be paid as well because of differences in topography, a characteristic which has not been particularly significant except where extreme differences existed.

Possible benefits from the employment of expert managerial ability in large-scale farming have not been given the consideration their importance demands. The typical small farm unit cannot offer sufficient reward and opportunity to attract the highest type of management. As large-scale farming becomes more prevalent there will be demand for the best managerial service as well as for the best technical practices. Just how important will be the results of greater use of both technical experts and the best of managers, we have no way of determining because neither have been tested extensively in our present agricultural organization. If the results obtained in large-scale production in industry are any indication of what may be expected in large-scale agricultural production, the greater use of first class talent will result in greater returns than will the adoption of large-scale technique. Just as recent improvements in farm machinery have increased its range in capacity, so will large-scale production increase the range found between the poorer managers and the better managers.

It is not possible to consider all of the possible advantages of large-scale farming within the compass of this paper. The financial organization, however, is of sufficient importance to warrant giving it brief consideration. Most Corn-Belt farms, as now operated, are handicapped because of a lack of working capital. It is my opinion that an increase of the working capital now used, would result in a more than proportionate increase in net returns. Thousands of farmers are unable to put into use practices which would result in increased returns because of a lack of available funds. It is even more important that large-scale farms be adequately supplied with liquid capital than that small farms be so supplied, because the mere fact that the enterprise is large makes possible the profitable employment of capital in

ways not available upon smaller farms. Some of these expenditures, such as extensive drainage operations, application of lime, clearing of land, and other similar projects are permanent investments and the large-scale enterprise must be organized so it can make such investments whenever they seem feasible. Probably most large-scale enterprises will be financed so that they may take advantage of these opportunities.

Large-scale agriculture in the Corn-Belt is not without its disadvantages. Perhaps the greatest problem is that of an adequate labor supply. If large-scale methods result in specialization in crop production, it will be impossible to keep the labor employed the year around. Transient labor must be employed at certain seasons of the year. Such labor is usually not satisfactory as it is often inefficient and undependable. It is impossible to supervise farm labor as closely as labor is supervised in industry. It is more important, therefore, that labor employed on farms have a certain measure of responsibility and ingenuity in meeting problems requiring immediate decision. Despite the introduction of machine methods, farm tasks are not routine. Judgment is required almost constantly. It is a difficult task, however, to decide how far the laborer may be permitted to exercise his individual judgment and when he must refer matters to the management for decision. Inasmuch as farming operations must be carried on over a wide area, it is impossible to exercise as close management over every operation as might be desired. In consequence the tasks will not be performed as well, men will not work as steadily, nor will equipment be taken care of as carefully as is true in industry.

The large-scale farm will necessarily have a complex organization for control and direction of its labor. This is a disadvantage because it will result in a heavier management load per unit of product than is found on the small farm. No one knows how far increased organization may go before the increased management expense will more than off-set any advantages received from it. The physical organization of the large farm may be simpler than that of the small farm. Fewer crops will be produced and fewer livestock enterprises will be operated. This simpler physical organization will tend to overcome some of the disadvantages of the more complex managerial organization.

The impersonal relationship between the management and the laborer tends to destroy the interest of the men in the success of the business. Although it is not essential to success to have

an interested group of employees, providing they can be closely supervised, it is advantageous to have a group of loyal men who are genuinely interested in the progress of the affairs of the business. Such a group makes management and labor problems much easier to solve.

Discussion of large-scale farming has centered about three or four types of business organization. The corporation farm has come in for a major consideration, with chain farms and farm management associations receiving some attention. Farm management service organizations have also attracted interest in a development that may prove significant in certain areas.

Corporation farms are not new. For decades they have played important parts in the agriculture of the specialized wheat areas, of the livestock ranges, and in some of the fruit-growing regions. Apparently they have proved most successful in areas lending themselves to high specialization in production. There are very few corporation farms in the corn-belt. Of course there are some land-owning companies organized on a corporation basis, but these can hardly be called farms.

Chain farms, so-called, have been more or less common throughout the country. Their operation has differed little or not at all from individually operated farms. Owners have usually operated under typical rental contracts and have exercised varying degrees of managerial control. Chain farms have developed, not with the idea of enabling owners to benefit by certain of the economies of large-scale operations, but rather as a haphazard collection of farms under individual or family ownership with little regard to any possible large-scale economies. Thus far there is little indication that chain farms generally will develop into an example of large-scale operation. It would of course be possible for them to do so, but in most cases, I believe, the chains will have to be transferred to new owners before the present plan of operation is greatly changed.

Farm management associations of the type operating in Illinois for several years, and in Iowa and Minnesota for a much shorter period, afford possibilities of providing certain advantages of large-scale operations to individually owned and operated farms. These cooperative enterprises enable the farmer to benefit by better farm business records than are usually kept on the individual farm. Furthermore, members of these associations are securing some of the advantages of specialized ability, ordinarily available only to large enterprises, by having

an opportunity to consult a specialist in farm management problems. It is of course a question whether the organization of these projects, thus far, permits a thorough exploitation of the possibilities in this direction. As time goes on, members of the association should realize the value of expert assistance in management problems and should be willing to bear the larger expense incident to reducing the size of the association to a point where service may be rendered. In time, these associations may assume certain buying functions for their members such as the purchase of fertilizer, farm machinery, and such supplies, activities which should result in important economies.

Farm management agencies, operated for profit, offer to the individual owner expert service ranging from periodic consultations to complete management of the farm unit. These agencies should prove a boon to the absentee farm owner or to others who are unable to assume the responsibilities necessary to the success of a farming enterprise. Several such agencies operate in the corn-belt. Thus far they have not met the reception that might reasonably have been expected, nor will they establish a permanent place for themselves in corn-belt agriculture until they can demonstrate conclusively that they add more to the owner's net income than the cost of the service.

In addition to the individual owner in the corn-belt with land and capital sufficient to engage in large-scale farming practices, one or another of the above mentioned business organizations will be instrumental in putting large-scale farming methods into effect. Large-scale farming will not develop rapidly in the corn-belt as the necessary capital will not be readily available. Neither is it likely to control a large share of the corn-belt area. Large-scale farming requires specialization to be especially successful. A high degree of specialization in the corn-belt is not probable. Livestock production does not lend itself well to large-scale production, particularly the production of hogs and feeding of cattle, the two more important livestock enterprises. My own prophecy would be that there will not be many large farms or corporation farms created in the corn-belt. I would expect a material increase in the size of the individual farm, however, during the next two decades. The most efficient family-size farm may well become from one to two sections in size. The individually operated farm has many advantages which will go far toward overcoming the advantages in the extreme type of large-scale production.

The social effects of large-scale production are likewise problematical. The indications are that fewer people will be needed on the farms of the corn-belt and in the corn-belt villages than formerly. It seems likewise true that there will be more hired labor. It is even possible that we shall see developed an agricultural laboring class whose direction of mobility will not be toward the farm-owning group but toward the laboring classes of the cities. The tendency toward larger farms tends to throw an almost insurmountable barrier in the way of a man who wishes to progress up the agricultural ladder. Of course the small farm of a quarter-section and less will not disappear, but in time to come it may be looked upon very much as is the forty-acre general farm today.

The foregoing does not imply that agricultural laborers will be a poorly paid, exploited group. They may very well enjoy better incomes and better working and living conditions than many small independent farmers, either owners or tenants, do today.

This thinning out of the rural and village population will raise many social problems. Schools will be more difficult to support, as will churches. The social life of the communities may be greatly narrowed. This new type of agriculture may result in the raising of social class barriers which have heretofore been of relatively small significance in the countryside.

It must be realized that many of the above statements are hazards rather than prophecies. However, many of them are based on apparent, but not too obvious analogies with similar developments in industry, and others would seem to follow logically from the present trend in agricultural development. While these suggestions are not offered with any idea that they are definitive, they still may be helpful as a point of departure for further discussion of this problem.

NOTES

The "Notes" section of the JOURNAL was begun in the April issue, 1929. At that time the following item was published to indicate the sort of material which was to be included:

1. Short bits of theoretical analysis, such as that of the intensive and extensive margin in this issue. It is hoped that most of them will be newer and fresher than this.
2. Reports upon small pieces of research, such as that of Mr. Waugh in this issue.
3. Important side-products of research projects that are out of unity in the regular reports.
4. Preliminary statements of important research results.
5. Reports of results with a particular research method or device.
6. Suggestions of new methods of attack upon problems.
7. Criticism briefly stated of points in articles published in this or other journals, or in new books or important bulletins that are published.

Since that time the section has continued under the editorship of Professor J. D. Black of Harvard University, to whom contributions should be submitted.

The present editors would like to repeat also a further statement made at that time:

The editors feel that many valuable ideas and results in our field are constantly being wasted because those who have them do not get around to working them up thoroughly. The "Notes" is to be a place where these can be published at once, and where the author can stake out his claim to his intellectual property by signing his name to it.

The notes may be as short as a single paragraph, or as long as a thousand words.

The Editors

THE FIRST ANNUAL REPORT OF THE FEDERAL FARM BOARD

The following is not intended to be a review of the Federal Farm Board's first annual report; nor yet a general analysis of its policies. All that the writer purposes is to remark upon a few significant points in it. And lest these remarks be misunderstood to indicate disapproval of the report, the writer hastens to state that in his judgment it is remarkable for its candor and for the understanding it displays of difficult problems. As so forcefully stated in the report, the Board must learn to handle many of its problems by trial and error. By reporting faithfully to the world, as in this report, its experiences with various ventures, it is rendering a service to all students of its problems, and meriting their kindliest cooperation. It is in this spirit that the following observations are made:

1. The act under which the Board is operating is called "The Agricultural Marketing Act." It does indeed mention orderly production and preventing surpluses and overproduction; but surely only as accessory to orderly distribution. In fact, orderly production is presented in the Act as one half of one of four ways of promoting "effective merchandizing." The Board, if we may judge by the report,

has shifted the emphasis more to orderly production. For example, there is the statement: "The agricultural marketing act mentions both (ways of dealing with agricultural surpluses), but gives first place to the former way—prevention" (p. 4). It is true that the Act speaks in the order "production and distribution"; but this was merely for logical reasons, and not to be taken to indicate emphasis.

Agricultural economists will not quarrel with the Board for this shifting of the emphasis. It merely means that the Board has advanced further in its thinking on this problem than had the framers of the Act. Most of us remember how hard a struggle it was back in 1922-25 to get the administration and leaders of thought on agricultural problems to realize that the difficulties confronting us were not mostly of marketing origin; how President Coolidge, in an address about that time before the International Livestock Show, first mentioned orderly production along with orderly marketing, and we all commented on it, and wondered who worked up this part of his address. Mr. Sapiro's emphasis, which was strong in those days, was almost exclusively on marketing. Within a few years, leading papers have been read before the American Farm Economic Association in which the agricultural depression has been attributed almost solely to middlemen's margins. The Agricultural Marketing Act was framed by persons still laboring under such influences. The Board is to be congratulated on the progress of its thinking.

II. The Board also seems to have chosen to stress especially the setting up of national cooperative marketing structures for each commodity. The specific authority for this in the Act is, if anywhere, in the phrase "promoting the establishment and financing of a farm marketing system" in Section 1 (a) (3). Even with this phrase included, however, the Act could properly be interpreted to require the Board only to assist in setting up any number of cooperatives for each commodity independent of each other except for such joint action as assigned to the commodity committees and clearing house associations. The regional organizations which figure so conspicuously in the Board's scheme of national cooperative marketing structures likewise are not provided for specifically in the Act. The Board itself is directly responsible for the scheme of integrated regional and national cooperative commodity organizations. It has devised these schemes as its way of "promoting effective merchandizing" of farm products. It will have to accept the credit or blame whichever way any of these schemes turn out.

The reasons advanced in the report for setting up these national cooperative marketing structures are to "obtain the economies of large-scale operation," and to "enable farmers to control their industry both as to production and marketing" (p. 3). The second of these objectives is elaborated elsewhere in the report to include realization of a "substantial degree of bargaining" gains through control of a considerable fraction of the product (pp. 4, 6), and also some gains through "regulation of production" and prevention of surpluses that depress the price excessively.

One comment proper to make at this time is that we have just passed through a period when the economies from large-scale operation have been considerably exaggerated; likewise the gains to be made from consolidations and mergers in the field of selling as well as in manufacturing. Specious merger prosperity helped give us a stock-market boom, it is true; and also a stock-market collapse. The history of the period of mergers from 1900 to 1910 has been repeating itself. Whatever the merits of such a program for industry, and few will deny some very substantial advantages, the extent to which they can be realized by organizations of farmers is still somewhat uncertain, and likewise the manner of doing it. Congress—at least a scant majority of it—came to believe in such a program for agriculture as a result of a

blood-transfusion from "big business" performed by Mr. Aaron Sapiro with the aid of a former Secretary of Commerce and a former Secretary of Agriculture.

A second comment relates to the accomplishments along the foregoing lines claimed in the report. The mere fact of handling already this season a large volume of grain, livestock and wool through such national organizations does not prove much. We shall have to wait for a while to see how well these organizations function, and what they really achieve in the way of economies, bargaining gains and the like. The Board will understand, we may be sure, how some of us fear that some of these national structures have been builded in too great haste and with too much poor material; how some of us feel that the caution with which the Board has proceeded in building structures for dairy products, tobacco, potatoes, beans and several other products, would have been proper in the case of some of the structures now built. Perhaps the commodities least organized as yet will prove to be best organized when organized.

III. The report seems not to be very consistent on the point of its authority over cooperatives. At one point, it states that the Board has no power "to set up organizations or control those now in existence or that may be organized" (p. 4); at another of "certain effective means of establishing contacts with agricultural producers through their cooperatives" (p. 4); and at still another of the Board's "pursuing a policy of extending loans only to those cooperatives affiliated with the regional or national set-up" (p. 7). We do know that the Board has taken a strong part in developing the regional and national set-ups, and has used its revolving fund as an effective weapon in securing acquiescence to its wishes. The public is certain to hold the Board almost as responsible for the policies and accomplishments of the national marketing structures as if they were units in the Board itself.

IV. The report talks of bringing production into line with "market requirements" as if these were definite and ascertainable amounts. First of all, there are no such definite market requirements, but only a set of relationships of consumption to price and a lot of other factors. Secondly, if the Board is ever able to lead organized producers to limit production to its pre-estimate of the "market requirement," it will by that act have established a monopoly price.

V. The report, like the Act itself, is very indefinite as to extent to which monopolistic practice is intended. There is certainly lack of clearness on this point—possibly lack of candor. (See the writer's paper on "The Social Implications of Restriction of Agricultural Output" in the 1931 Proceedings of the American Economic Association.)

VI. The public will presently want more evidence than the mere statements in the report as to the effect of the Board's stabilization operations on prices of farm products.

VII. In only one paragraph (p. 36) is full recognition given to the essential nature of curtailment of production as consisting of readjustment of it—that is, finding other uses for the land or the labor, and getting them adopted. In no paragraph is there adequate recognition that curtailment of aggregate production may not always be good national agricultural economy.

VIII. The term "education" as used in the report seems to mean little more than holding a series of meetings preparatory to setting up an organization (p. 21). Let us hope that it will soon be given a broader meaning.

IX. It is true, no doubt, that the Board has been assigned the task of working out the details of the particular agricultural "policy" which is expressed in the Marketing Act (p. 2); but this does not mean that upon it rests the sole responsibility for developing the nation's agricultural policy. Other agencies and forces will in-

deed take part in this, conceivably a more important part. Policies are evolved in the public mind, not in the minds of a few people empowered to undertake some ventures in orderly marketing and orderly production. The public's reaction to these ventures is more significant from a policy standpoint than the ventures themselves. The Marketing Act is a program more than a policy. Our national agricultural policy is something much more comprehensive than this particular program.

X. As was generally recognized at the time, the Marketing Act is a messy affair as a bit of legislation. If we had never had any state and federal agencies working and thinking upon agricultural problems, there would have been excuse for drafting so inchoate and indecisive a bill. As things were, it should have been possible to formulate the powers and functions of a board of agriculture in rather clear-cut form.

The report gives evidence that the Board appreciates the confusion in the Act, and is trying to define its powers and discover its particular rôle in public relations to agriculture. But there is also evidence of an interest in activities clearly outside the field of a board of agriculture; for example, the investigations in land utilization, etc., mentioned in the last paragraph upon the work of the "Economics Division." The Board should recognize that its grant of powers to make such investigations (Section 5 (5)) is not an order to do so, and merely represents confusion in the minds of the framers of the Act.

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FORECASTING THE SPRING PRICE OF EGGS

The importance of establishing the correct price on eggs during the spring period of surplus production was demonstrated again in 1930. Production and receipts were expected to be liberal. Storage operators made above average profits in the 1929 deal and were expected to bid liberally for 1930 eggs, even allowing for the influence of the uncertain business outlook in dampening their speculative ardor. Consumer demand was expected to be slightly below normal on account of the business depression.

Receipts proved to be about as heavy as expected, but consumer demand turned out to be much weaker. Prices started too high to secure the necessary volume of consumption and early storers of eggs at rather optimistic prices resisted a price decline. The result was record holdings of both shell and frozen eggs in storage on August 1, and an access of refrigerator eggs depressing the market ever since. The losses on these refrigerator eggs will make storage operators very conservative and act to depress the price during the spring of 1931.

Producers of eggs and egg dealers are vitally interested that the spring prices of eggs start at the level that will induce the consumption of the correct proportion of the spring receipts, so that only enough eggs will be stored to make up the expected deficit in fall and winter production, plus a reasonable safety reserve. In order to do this they need to know early in January, as accurately as possible, the volume of spring receipts, the strength of consumer demand, and the strength of the demand for storage. Accordingly the writer has made an attempt to forecast these forces of supply and demand in January, and on the basis of these, the probable prices of Pacific Coast and Midwestern eggs during April and May.

The average of prices for April and May are used because approximately 70 per cent of the eggs stored during the spring and early summer are put into the warehouses during these two months. The forecast for the average price during these two

months can be converted into forecasts for each of the months from March through June on the basis of the average change in price between the months for the years 1922 through 1929, if allowance is made for Easter's coming before or after the middle of April.

The probable volume of receipts of eggs during the spring can be forecasted in several ways. Receipts of eggs at the four markets, Boston, Chicago, New York and Philadelphia, during October–December are one indicator of the probable volume of spring receipts because the birds laying in the fall are generally also laying in the spring, unless unusual circumstances intervene. The accuracy of a forecast on this basis is modified by several factors. The first is that the production per bird during the fall months is conditioned by weather and the amount of feed fed, which latter depends on its cheapness and abundance. Another factor is earliness of hatching, many late-hatched birds do not commence to produce eggs until January. A fairly accurate forecast of spring receipts can be made if fall production per bird and the earliness of the hatching are used as correction factors for the recorded fall receipts.

Another basis for forecasting spring receipts is the government report for January 1 of the numbers of chickens on farms in the north central states, which supply about two-thirds of the receipts of eggs at the four markets. Even late-hatched pullets have been added to the laying flocks by the first of the year, so that allowance need be made only for the probable number of birds which will be sent to market during January and February. The December–January feed-egg price ratio indicates whether egg production is profitable and hence whether few or many birds will be sent to market before spring.

Consumer demand influences the proportion of the receipts during the spring which are placed in storage. When consumers have more than normal purchasing power, they tend to pay higher prices and eat more eggs than at other times. With higher prices, the speculators tend not to bid so actively for eggs to store, and a larger proportion go into current consumption. The volume of eggs consumed during January, in proportion to the price, is one indication of the probable strength of consumer demand during the spring. A larger than normal volume indicates that consumers are feeling prosperous and that eggs are attractive in price in comparison with substitute products. In years when conditions do not change rapidly between January and April and May, this measure of demand provides a means of forecasting the influence of consumer demand upon spring egg prices.

The Bureau of Labor Statistics all-commodity wholesale price index is a fair indicator of business activity and hence of consumer purchasing power, which is another influence upon the demand for eggs. The all-commodity index, therefore, can be used to forecast consumer demand for eggs during the spring.

The demand for eggs for storage is influenced by previous profits and the outlook for the current year. Empirical tests indicate that profits (margins) for the season just closed and those for the previous year weighted 2:1 will measure fairly accurately the influence of storage profits upon the demand for storage. The outlook for any year is colored by the probable consumer demand for eggs. Apparently storage operators judge this probable consumer demand by the outlook for business conditions during the year, and they seem to accept the judgment of the stock market as to the business outlook. Many of the dealers and egg speculators also operate on the stock exchange and hence are acquainted with the optimism or pessimism regarding business prospects. The change in the price level of stocks from one January to the next apparently indicates fairly well the influence of the business outlook upon the demand for eggs for storage.

Forecasting generally proves more accurate if the series representing the various factors are related directly to the prices to be forecasted than if the series are used to estimate the supply and demand factors and then these estimates are related to prices. This was the procedure followed in the study under discussion. Six of the combinations of factors which had given the most consistent and accurate estimates of prices for the years 1922-29 (the years on which the analysis was based) were employed to forecast the New York prices of "storage-packed midwestern firsts" during April-May of 1930. Each of the forecasts for 1930 proved to be higher than the actual price. The greatest error was 3.36¢, the smallest error 1.16¢ and the average error of the six forecasts was 2.38¢. The most accurate forecast was made from the number of birds on farms January 1, storage profits, and change in the level of stock prices from one January to the next. The accuracy of the statistical forecasts made in January can be compared with that of the January price of April futures. The futures in New York sold for 3.41¢ above what the actual price proved to be, and in Chicago they were 3.1¢ too high.

The six forecasts of the price of "Pacific Coast extras" in New York were more accurate, though all were too high. The greatest error was 2.3¢, the smallest error was 0.1¢, and the average error was 1.2¢. The forecast made from October–December receipts at four markets and the December feed-egg ratio was only 0.5¢ in error. The method which in 1929 forecasted the spring price within 0.6¢ came within 1.0¢ of the 1930 price.

Eight years may seem like a short period upon which to base statistical forecasts of prices. However, conditions in the poultry industry have changed so rapidly that data for the years prior to 1922 do not show the same relationships as do the years since.

The years 1922-29 experienced a slowly falling general price level. The sharp break in prices which occurred early in 1930 must be taken into consideration when applying the forecasting methods based on 1922-29 relationships to 1931. It is hoped that with the experience of last year as a guide, the 1931 forecasts of spring egg prices will be more accurate than those for 1930.

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THE SOUTHERN AGRICULTURAL OUTLOOK CONFERENCE

A new chapter in the development of outlook work was written in Atlanta, Georgia, November 10 to 14 by a group of about two hundred economists and extension workers representing the United States Department of Agriculture, the Federal Farm Board, and the college extension and research organizations of eleven southern states. A description of the organization of this conference and its accomplishments should be of general interest to farm economists.

Preparations for this conference were carefully made. First of all, the Bureau of Agricultural Economics had prepared preliminary outlook statements in mimeographed form and these were ready for discussion at the conference. Then states committees by subjects, with most of the states represented on each, had been appointed several weeks prior to the conference. These committees had been asked to develop the more local phases of the outlook and to contribute such detailed information as might be available for the states.

The procedure in the conference itself consisted, first, of discussions between the states committees; second, presentation to the general conference of the amended Bureau reports and discussion of these, led by Eric Englund as Chairman of the Conference; also similar presentation and discussion of the states committee reports;

third, drafting all reports in final form; fourth, adopting a general extension outlook program for the southern states; and fifth, singling out the "high spots" for the press, under the direction of Clyde L. Marquis of the Bureau.

Since the conference, several follow-up steps have been taken. The Bureau has published "The Agricultural Outlook for the Southern States—1930-31" (Miscellaneous Publication No. 102, 56 pp.) and "The World Cotton Situation with Outlook for 1931-32" (Miscellaneous Publication No. 104, 75 pp.). Most of the eleven states represented have already published or have in preparation state outlook reports. The content of the outlook reports is being widely disseminated through extension departments, agricultural teachers, the press, bankers' associations, and Farm Board workers. The most complete outlook information is thus being made available to farmers and at an earlier date than in any previous year. Southern farmers thus have an excellent opportunity to utilize the outlook information in making plans for 1931.

The outlook statements discussed in Atlanta related to demand prospects, credit, cotton, tobacco, truck crops, commercial early potatoes, sweet potatoes, peanuts, feeds, seeds, peaches, citrus fruits, strawberries, rice, sugar, poultry and eggs, dairy products, hogs, sheep and wool, beef cattle, and finally, a long-time outlook for agriculture in the southern states.

Naturally the outlook on cotton was of most widespread interest, notwithstanding the legal restrictions forbidding federal employees making any forecasts as to price trends. Incidentally, these restrictions were fully observed. The major conclusions of the general report on cotton were as follows: The consumption of American cotton in 1929-30 fell off 2,000,000 bales from the previous year. Foreign manufacturers used larger proportions of foreign growths because of price differentials. The carry-over on August 1, 1930, was 1,800,000 bales larger than a year earlier. The supply, composed of this carry-over plus the current crop, amounts to 20,700,000 bales of American cotton, which is 300,000 bales greater than the average for the past five years. Production of American cotton has varied but little for three years. The depression is regarded as principally responsible for present low cotton prices. However, cotton acreage in this country increased materially after the World War, and for several years has been at a rather high level. There are evidences that the Southeast is becoming adjusted to the boll-weevil on the basis of larger yields per acre of a better quality of cotton. It is expected, however, that the states east of Alabama will use less fertilizer, and probably with a normal season next year, as contrasted with the good season this year, will make a smaller yield of lint per acre than was made this year. The central part of the belt should make better yields per acre and the average for the United States should be somewhat higher in 1931-32 than for the current year.

The states committee on cotton made the following farm program suggestions based on the facts of the cotton situation:

(a) The reduction of cotton acreage likely to be economically necessary in 1931 should take place as far as possible on the poorer lands.

(b) It is essential that greater efforts be made to lower the expenses of producing cotton.

(c) The production of alternative crops should be undertaken in accordance with each grower's individual circumstances.

(d) Varieties of cotton should be planted that show the best quality of lint consistent with highest income per acre.

(e) It will be necessary to make unusually good use in 1931 of the credit and cash resources of the region.

The outlook is that crops other than cotton will be increased in 1931. This has happened following previous years of low cotton prices, such as 1926, 1920, and 1914. The increases in acreage will perhaps be mostly of feed and food crops, particularly of corn, oats, hay crops, sweet potatoes, and grain sorghums. Other cash crops will be increased slightly, but unfortunately the outlook for most of these is little, if any, better than that for cotton.

Of special interest because of its content and novelty was the long-time outlook report for agriculture in the southern states. This report points out that land prices may not recover losses of recent years for sometime, that farm incomes for the next five years may be less than for the past five years, that keen competition lies ahead for southern farm products, that possibly we may be facing a declining price level generally, that the livestock population with the exception of workstock has about reached the bottom in the cotton states and may be expected to increase somewhat to take care of local needs; and that cotton is likely to dominate the southern agricultural situation for an indefinite period, other sources of income being substituted gradually as the industrial development of the area progresses. Exceptions as to the domination of cotton apply to specialized areas. In spite of all this, however, it was felt that in a year like the present the pessimism of farmers is likely to run to the extreme. Improvement in methods of farming will aid in meeting new conditions, and in particular, as labor conditions change, mechanization is expected to assist in bringing about a greater measure of prosperity.

The committee on the extension outlook program for the southern states suggested the timeliness of working out better plans for utilizing economic information, and of aiding farmers to do likewise, as a means of increasing farm incomes. The committee made a number of recommendations, the following being the principal ones: (a) that a regional outlook conference for the southern states should be held annually early in November; (b) that these conferences should be more largely attended by directors of extension, specialists and county agents; (c) that special emphasis be placed on methods of doing extension work in economics; (d) that state outlook reports be prepared regularly by extension and research economists and subject-matter specialists; (e) that definite plans be formulated for training extension workers in economics; (f) that plans for the development of agriculture in the different states be based firmly on economic facts; (g) that special commodity outlook meetings of farmers be arranged at times when consideration is being given to plans for the particular commodities; (h) that careful study and use be made of the various means of disseminating timely economic information, including newspapers, radio, meetings, circulars and bulletins, monthly economic publications, visual methods and economic briefs for subject-matter specialists and county agents; (i) that extension and research workers in economics cooperate closely with each other in the discharge of their respective functions; (j) and that in working for acreage adjustments, consideration be given to the viewpoint and long-time interests of individual farmers and their circumstances.

D. W. Watkins

Clemson College

ORGANISED MARKETING FOR BRITISH AGRICULTURE

The Agricultural Marketing Bill, which has just passed its second reading in the present session of Parliament, is designed to assist farmers in Great Britain to build effective large-scale organisations capable of regulating the marketing of home supplies as a whole and of exercising a conscious control of such supplies at

the source. The chief stumbling-block to such efforts in the past has been that, however clear the advantages of co-ordinated action may have been, there has always been a minority of individuals who preferred to stay outside and leave others to carry the load which, in fairness, should be carried by all. The essential purpose of the Bill is to provide legislative authority for bringing and keeping a dissident minority in line. For this, as is well known, precedents exist in the British Dominions and elsewhere. There are, however, a number of features in the Bill which give it unusual interest.

First, the Bill is an enabling measure; that is to say, it enables farmers to do certain things and use certain powers if they so wish. The Bill might become law and remain dead unless farmers chose to use it and infuse life into it. It provides that a scheme regulating the marketing of any product to which the Act applies, namely, milk, potatoes, hops, wool, cereals, cheese, livestock, fruit and eggs may be submitted by any persons who satisfy the Minister of Agriculture that they are substantially representative of the persons who produce that product in the area to which the scheme is applicable.

No numerical definition of what constitutes a "substantially representative" proportion of producers is given in the Bill, but the Minister is required to have regard to both the number of persons represented and the quantity of the product produced in the area during a recent period, and also to consider representations made by opponents of the scheme. If approved by the Minister, a scheme is laid before Parliament in the form of an Order, which, unless objection is raised in the House has, in due course, the force of law.

Some of the provisions contained in the Bill are optional while others must be incorporated in any scheme. The schemes must provide for the registration of any producer who makes application for the purpose and for the constitution of a Board to administer them. The Boards are to be composed of elected representatives of registered producers, except that, for the first twelve months, they may be composed of persons nominated by the Minister in consultation with the sponsors of the scheme. The schemes may provide that the Board be enabled to buy, sell, and carry on other similar operations; may require registered producers to sell only through the agency of the Board; may stipulate the quantity of the product or kind, variety or grade thereof that may be sold; may fix the price at, above, or below which a product may be sold; may determine the persons to or through the agency of whom the product may be sold; may determine the manner of packing and grading to be followed; and, finally, that the Boards may encourage agricultural research and education.

The following provisions must be found in every scheme:

(1) No sale of the regulated product shall be made by any producer who is not either a registered producer or exempted under the provisions of the scheme.

(2) Fines shall be imposed by the Board on persons contravening the scheme.

(3) Any producer aggrieved by any act or omission on the part of the Board shall have recourse to one or more arbitrators provided by the scheme.

Every scheme is required to establish a fund into and out of which all monies handled by the Board are to be paid. The Board is empowered to assess and recover contributions from registered producers to such amounts as may be necessary for the operation of the scheme. The Board is required to pay out of the Fund such sums, by way of compensation, as may be necessary to secure that the scheme works equitably as between the registered producers, all surpluses remaining to be returned to producers in proportion to their respective contributions to the Fund. The Board is further empowered to lend to any registered producer up to the amount which the

Board estimates he will receive from the sale of his produce. Powers of borrowing under the Agricultural Credits Act, 1928, are also conferred on a Board.

A further clause in the Bill provides that contracts made before or up to six months after a scheme comes into force will not be prejudiced unless made with the intention of evading the scheme.

As soon as a scheme comes into operation, the Minister is required to set up a Consumers' Committee consisting of six members, with duties of safeguarding the interests of consumers of the regulated product. After the first scheme has been approved, another committee, to be known as the Committee of Investigation, is to be appointed which shall consider and report to the Minister on any report made by a Consumers' Committee or any other complaint not falling within the purview of the latter. If the Committee of Investigation reports that any provision of a scheme or any act or omission of a Board is contrary to the interests of consumers or other persons affected by the scheme or is not in the public interest, the Minister may, by Order, amend or revoke the scheme or require the Board to rectify the matter complained of. If the Board fails to comply, the Minister may dissolve it and appoint a new Board.

For the purpose of making loans to schemes operating under this measure, the Bill provides for the establishment of a Fund, known as the Agricultural Marketing Fund, of £625,000, of which £125,000 will be for Scottish schemes, and for the appointment of committees to administer the Fund. In general the loans will be of two kinds: (1) Short-term loans, free of interest, to provide for expenses incurred in connection with the initial working of the scheme. Such loans are to be repaid within two years unless it is shown that the Board, while in a position to repay them, requires their renewal to provide for additional services, in which case they may be renewed provided adequate arrangements are made for repayment when due.

(2) Long-term loans, for periods of more than two years, to be made on such terms and secured in such a manner as the Minister, with the approval of the Treasury, may prescribe. Expenses involved in the administration of the Act are to be defrayed out of monies provided by Parliament, not out of the above-mentioned funds.

Another clause in the Bill empowers the Minister to constitute one or more Agricultural Marketing Reorganization Commissions whose primary function will be to take evidence from all interests concerned and to prepare detailed schemes for organizing the marketing of any commodity for which there appears to be a *prima facie* demand for such. The functions of these Commissions will, however, be purely advisory, the final decision as to the submittal of a scheme resting solely on the producers concerned.

It may be noted that, so far as England is concerned, the Bill provides for the establishment of an *ad hoc* body—a Board—to administer any scheme. It was felt that since there exists in England no cooperative organisation of sufficient importance to administer a national scheme, it would be better to create any such organisation *de novo* rather than build on local voluntary cooperatives. In Scotland, however, voluntary cooperative marketing organisations have made more progress in recent years; the Bill, accordingly, provides that where an agricultural society is able to satisfy the Secretary of State for Scotland that it is substantially representative of the producers of a product in an area and that its members are bound by contract to sell only through the agency of the Society, the governing body of the society may constitute a Board for the purposes of the Act. In other respects, the general provisions of the Bill apply to Scottish schemes.

In general, two types of organisation are contemplated under the Bill. The well-known pool type would seem to be well adapted to the needs of those products—milk, potatoes, hops, for example—which are largely home-produced but of which the market is burdened with surpluses of the British producer's own creation. Alternatively, the organisation might be of a non-trading regulatory type, concerned more with the technique of marketing—grading and packing, for example—than with the physical handling of the product. There are, of course, any number of variations of these fundamental types all of which it would be perfectly possible to set up under the Act.

It may perhaps be pointed out that the Bill provides for the regulation of the marketing procedure of producers within a defined area of production and creates sanctions against such producers but against no other persons: the Bill does not attempt to regulate the purchase of a commodity within this defined area of sale. Further, it will be noted that the Bill does not specifically confer on a farmers' Board power to restrict production. There is a real distinction between restriction of production, which the Bill does not authorise, and restriction of sales, which it does. Restriction of sales, it is true, might operate differently as between commodities for which there are, and commodities for which there are not, alternative surplus markets. Only in the case of commodities, such as hops for which no alternative market exists, would restriction of sales be likely to result, indirectly and eventually, in restriction of production, and that only if production had so outrun demand that home or world markets could offer no prospect of absorbing, even ultimately, crops in excess of the restricted sales. It will be within the power of producers to ensure that restriction in this case operates equitably and to determine to what extent equity demands that protection should be given to the producer of high quality or to producers with low production costs or to producers of any other class.

Essentially, the Bill marks a further stage in the programme of marketing reform which began in 1924 with the establishment of a Markets Branch in the Ministry of Agriculture and Fisheries, and is complementary to the grading and standardisation schemes associated with the National Mark. In this sense, it is properly regarded as a non-party measure. It was, however, opposed by the conservative party in Parliament primarily because it does not attempt to protect the British farmer against imported supplies. In the country, its reception has naturally been somewhat mixed. The National Farmers' Union has been keenly critical of the Bill, but other farmers' organisations have been warmly in its favour. The distributive trades have so far refrained from comment. Indubitably, the Bill represents a long step away from the "rugged individualism" that has, rightly or wrongly, been associated with the farming class in nearly all countries; but it can hardly be denied that this is the direction in which the tide of social and political events is turning.

R. C. Hinton

Harvard University

THE ENGLISH AGRICULTURAL LAND (UTILISATION) BILL

This bill has recently been under discussion by the British Parliament and is likely to become law early in 1931. It is the first of the present Labour Government's measures for the improvement of English agriculture. The bill is comprised of two parts, the first of which has, as its main object, the promotion of better utilisation of agricultural land in the country, while the second deals with the provision of small holdings and allotments. In the future, much of the work that was previously done by either local authorities or land-owners will devolve upon the government depart-

ment. In view of this, an allowance is made for an increase in the administrative and technical staffs of the Ministry of Agriculture. For the purposes of financing the work, $45,000,000 per annum have been allotted; in the event of this being inadequate, however, further sums will be sanctioned by Parliament from time to time.

An Agricultural Land Corporation is to be established which will be administered and controlled by directors. This body will have power to acquire land, normally by agreement; but provision is also made for acquiring it compulsorily from recalcitrant owners. The corporation may either purchase the land or take it on lease and later sell it. An Agricultural Land Fund is to be set up, into which will be paid all money received in behalf of the corporation and from which will be paid any sums required for financing its operations.

The schemes for the improvement of agriculture submitted by the Government necessitate the acquisition of land. The first of these is the establishment of demonstration farms. These are to be run by local authorities, universities and agricultural colleges, and at these centers courses of instruction will be given in agricultural subjects. Such institutions already have their own experimental farms, but the new farms will be more in the nature of experiments in "large-scale" farming. During recent years it has been maintained that large farms, where strict attention is paid to business principles, have a better chance of overcoming the difficulties which English agriculture now has to face. The demonstration farms will therefore afford a means of testing the validity of such a contention.

The second object of acquiring land is for the purposes of reclamation, drainage or other improvements which may be necessary in order that these areas may be satisfactorily used for agricultural purposes. Under this section of the bill, the Corporation is vested with power to deal with landlords who allow their land to become derelict. The proprietors will be obliged to execute such work on their land as will maintain its usefulness unimpaired. In the event of the owner failing to execute the necessary works of maintenance required of him by the authorities, the land may be taken over in order that such work may be performed under the direction of the Corporation. Subsequently this land may be let or sold by the authorities.

During the last eight or nine years, much land in the country has received less attention than was previously the case and in consequence its productivity has declined. Much land needs draining, and dykes and fences have been neglected in some areas. It is assumed that these regions will repay a more intensive treatment. This measure therefore will tend to transfer the ultimate responsibility for the maintenance of improvements on the land from the owners to the state.

Part II of the bill has for its main object the provision of smallholdings and allotments to satisfy the present and ordinary demand, and in addition the demand of any persons at present unemployed who may desire such holdings or allotments. The holdings will be of sizes ranging from 1 to 50 acres. Some of them may have buildings suitable for the proper working and maintenance of the land, while others will consist solely of bare land. Power is conferred on the Minister of Agriculture to provide smallholdings to satisfy applications of the ordinary type in districts where an insufficiency of such holdings exists. If unemployed persons desire to lease small holdings, they will be provided directly, the lessee being granted an allowance or given a guarantee, or provided with stock, feeding stuffs, fertilisers, and implements. A stipulation is laid down, however, that the occupier must himself cultivate the holding and be capable of cultivating it properly.

The estimated capital cost of providing smallholdings for unemployed persons is $3,200,000 per 1,000 holdings. The rents received from the occupiers of these hold-

ings, it is estimated, will approximate 2½ per cent on the capital expenditure. It is estimated that $1,375,000 per 1,000 holdings will need to be advanced as working capital to prospective smallholders who have been unemployed. Where necessary, a maintenance allowance is further paid to an unemployed person; but this is fixed by the Bill at a maximum of $250. The cost of this per 1,000 smallholders will therefore approximate $200,000.

Lack of sufficient training may debar some unemployed men who have the desire and the necessary ability from obtaining smallholdings. To obviate this difficulty, the Bill makes provision for the establishment of training centres and institutions where the required training will be made available. In order that occupiers of smallholdings may have some guidance as to the proper management and cultivation of their land, demonstration smallholdings will be provided, equipped, and managed under the terms of the Bill, usually by agricultural institutions and universities.

Where the Minister of Agriculture finds, after sufficient enquiry, that the local demand for smallholdings is not being satisfied by the County Councils, he shall have power to provide such holdings direct; and after acquiring the land he may sell it, let it for other purposes, or exchange it for land more suitable for smallholdings. Where the breaking up of large farms into smallholdings has thrown agricultural workmen out of employment, these shall be classed as unemployed and considered as applicants for holdings.

With regard to allotments and cottage holdings, County Councils are granted power to obtain them for persons who, (a) will reside permanently in the dwelling house on the holding, and (b) have the intention, knowledge and capital to cultivate satisfactorily the land forming part of the holding. If, however, there are unemployed persons desirous of obtaining cottage holdings, and even if their occupation of the land is likely to entail a loss, the Council has authority to grant the holdings and the Treasury will defray the losses.

W. H. Jones
Robert Taylor

Harvard University

THE EFFICIENCY CONCEPT

Dr. B. W. Allin has objected to certain statements in my note in the JOURNAL of April, 1930, as based upon my failure to understand his analysis of the concept of efficiency. Correspondence with him develops the fact that his meaning for "use-value" differs much from the accepted meaning of "utility" and that until his meaning is understood, there can be no agreement as to the concept of efficiency. Fortunately Professor Commons expects to publish a book which presents his whole theory of the difference between "use-value" and "scarcity-value" and the relation of these to efficiency. It will be time to resume discussion of the efficiency concept when this book appears. Dr. Allin's last comment was as follows: "You are quite right in your suspicion that the concept of 'use-value' is the center of the whole question. According to Professor Commons economists have confused this concept for a hundred years. He says, for example, that Böhm-Bowerk was confused in his idea as to what Ricardo and others intended. Until this confusion is straightened out (and it may take a whole book to do it) it is perhaps best to close the matter at this stage as you suggest."

John D. Black

Harvard University

SOME WISCONSIN FAMILY LIVING DATA

The following data concerning the living of farm families in Wisconsin should add a little to the growing body of information on the subject. They were obtained in connection with route records on three small groups of farms, as indicated in Table 1. The 56 Fond du Lac records were kept by 24 families in the years 1923–24, 1924–25 and 1925–26. The 21 Barron County records are for the year 1927–28 only. The Walworth records were kept by 24 families in the years 1921–22, 1922–23 and 1923–24. The 143 records represent 69 different families. In Table 1 and other tables following, the record rather than the farm is treated as a unit in compiling the averages.

Conditions represented by these families should not be interpreted as average or typical in all respects. It is very probable that the farms studied were operated by better than average farmers. Approximately five-sixths of the families were owners.

TABLE 1.—FINANCIAL STATEMENT, FARM BUSINESS, AND FAMILY LIVING RECEIPTS AND EXPENDITURES, 69 FARM FAMILIES OF WISCONSIN

	Average all counties		Walworth County		Fond du Lac County		Barron County	
	140 records		63 records		56 records		21 records	
Farm investment (land and buildings, equipment, livestock, feeds, supplies)	$25217		$25773		$26418		$20344	
Gross receipts from farming (cash)	3691		3332		3976		4088	
Gross expenses of farm operations (cash)	2328		2041		2524		2667	
Excess receipts from farming (cash)		$1363		$1291		$1452		$1342
Inventory change	162		185		−5		539	
Farm income		1525		1476		1447		1881
Interest actually paid	374		399		352		360	
Family living purchased (household and personal expenses)	1016		897		1118		1098	
Change in capital or accumulated savings		135		180		−23		423

The only item in Table 1 which needs explanation is the one called "change in capital or accumulated savings." It was obtained by subtracting "interest actually paid" and "family living purchased" from "farm income," which includes "change in inventory." If the $162 of increase in inventory is taken out of income, the families ran behind $27 during the year.

The figures differ noticeably by county and also by year of study. The Walworth County farmers had an average farm income of $1,476 with which to pay interest amounting to $399 and to meet family living expenses averaging $897 per family. The 24 families on record in 1921–22 had a farm income of $860 with which to pay $360 interest and meet a family living expense amounting to $819. The 21 families on record the next year had a farm income of $1,817, with an interest charge of $404 and a family living expense of $948; and the 18 families on record the third year had a farm income of $1,898 with an interest charge of $444 and a family living expense of $943 per family. For the Fond du Lac County families, the averages by years, 1923–24, 1924–25 and 1925–26, respectively, were as follows: interest paid, $348, $300, and $404; average farm income, $728, $1,331, and $2,276; and average family living expense, $1,152, $1,065, and $1,139.

Table 2 shows the cash spent for family living expenditures split into four groups.

The quantities of food furnished by the farm, and the value of this, if imputed on the basis of what this would sell for in the local markets, are given in Table 3.

Values of use of farm buildings, imputed by methods conventional in such studies, averaged $270 per record, and value of fuel used, $40. The variations between areas were slight.

The average size of family or household amounted to 4.6 persons for all the families. The Barron County families were smallest, 3.9 persons, compared to 4.3 persons for the Walworth County families, and 5.1 persons for the Fond du Lac County families.

TABLE 2.—CLASSIFICATION OF CASH FAMILY LIVING EXPENDITURES, 140 WISCONSIN FARM FAMILY RECORDS

	All counties; 140 records	Walworth County; 63 records	Fond du Lac County; 56 records	Barron County; 21 records
Total	$1016	$ 897	$1118	$1098
Food	317	312	305	363
Fuel	64	75	55	53
Automobile	118	83	153	133
All other	517	428	605	549

These results may be compared with those obtained for 126 Dunn County, Wisconsin, farm families, averaging 4.7 persons per family, for the year 1928-29. The cash expenditures for food in the Dunn County records are $7.00 more, for fuel $31 less, for automobile, $16 less, and for "all other", $20 more. The food furnished by the farm was valued $83 higher on the Dunn County farms, use of farm dwelling, $39 less, and fuel the same. The family cash expenditures are $102 more than for the 2,886 farm families in eleven states reported in Department of Agriculture Bulletin No. 1466; the value of furnished food, fuel and use of house, $177 less.

The analysis of items of farm family expenditure can be more complete than the above if families keeping such records will report the goods and services by name rather than group them as "personal." The different items can then be classified as desired by those having to do with summary and analysis of the data.

TABLE 3.—FOOD FURNISHED BY THE FARM, 140 WISCONSIN FARM FAMILY RECORDS

	All counties, 140 records		Walworth County, 63 records		Fond du Lac County, 56 records		Barron County, 21 records	
	Lbs.	$	Lbs.	$	Lbs.	$	Lbs.	$
Total	—	186	—	167	—	211	—	175
Milk	3316	64	3078	57	3804	71	2728	69
Eggs[1]	173	41	170	39	190	39	140	48
Poultry[2]	57	11	81	16	32	6	49	12
Pork	378	36	256	22	568	57	235	18
Beef and veal	113	11	42	5	154	16	219	18
Garden and other	—	23	—	28	—	22	—	10

[1] Eggs are computed in dozens rather than pounds.
[2] Quantities of poultry, pork, beef, and veal represent live weight rather than dressed weight figures.

E. L. Kirkpatrick
P. E. McNall

University of Wisconsin

BOOKS RECEIVED

Baldwin, B. T., Fillmore, E. A., and Hadley, Lora. *Farm Children.* New York: D. Appleton and Company. 1930. 337 p. $4.00. (Reviewed in this issue.)

Black, J. D. *Research in Public Finance in Relation to Agriculture—Scope and Method.* New York: Social Science Research Council. 1930. 175 p. $.75. (Reviewed in this issue.)

Buck, John Lossing. *Chinese Farm Economy.* Chicago: The Chicago Press. 1930. 488 p. $5.00.

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Penrose, E. F. *Food Supply and Raw Materials in Japan.* Chicago: The University of Chicago Press. 1930. 75 p. $2.00.

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Spahr, Walter Earl, Ph.D., Swenson, Rinehart John, Ph.D. *Methods and Status of Scientific Research with Particular Application to the Social Science.* New York: Harper and Bros. 1930. 533 p. $4.00.

Swanson, W. W., Armstrong, P. C. *Wheat.* New York: Macmillan. 1930. 320 p. $3.00.

Thompson, Warren S. *Population Problems.* New York: McGraw-Hill Book Company. 1930. 462 p. $3.75.

BOOK REVIEWS

The Farm Board, by E. A. Stokdyk and Charles H. West. New York: The Macmillan Company. 1930. pp. 197. $2.00.

This little book is a popular presentation of the purposes and powers of the Farm Board as established by the Agricultural Marketing Act of 1929. Brief mention is made of some of the activities of the Board and of the authors' views on the possibilities and limitations of the Board as a means of securing farm relief. In the authors' words, the book "is written primarily for the layman rather than for the specialist in the field of agricultural economics. The agricultural economist will find little material in the book with which he is not already familiar, except the authors' point of view."

Certain phases of the agricultural situation in the United States leading up to the passage of the Agricultural Marketing Act are reviewed, including changes in land utilization, the increasing efficiency of American farmers, population growth in relation to food supply, changes in the demand for agricultural products, foreign debts, the tariff, taxation, transportation costs, Federal Reserve policies, industrial wages, and the relation of land values to rural standards of living.

While the act specifies that it is for the purpose of providing economic equality for agriculture compared with other industries, the authors contend that this is an elusive and probably unattainable goal and that what really should be secured for agriculture is "equality of opportunity."

Six of the ten chapters are devoted to an analysis of the provisions of the Agricultural Marketing Act. These chapters deal with the general scope of the act, loans, stabilization corporations, price insurance, clearing house associations, and advisory commodity committees. In the opinion of the authors the stabilization and price insurance features of the act offer little opportunity for constructive improvement of agricultural conditions. They say "the stabilization corporation offers small possibilities for controlling an economic surplus, but on the contrary, is likely to intensify the problem."

The person who has not made a study of the Agricultural Marketing Act will find this short treatise highly informative and stimulating. In the opinion of the reviewer the authors have wisely refrained from an attempt to analyze in an exhaustive way the activities of the present Board. It is too soon to make such an analysis and it can be made satisfactorily only with the perspective which comes with the passage of time.

W. E. Grimes

Kansas State Agricultural College

Research in Public Finance in Relation to Agriculture, by J. D. Black. New York: Social Science Research Council. 1930. 175 p. 75c.

This report is the first of a series on "scope and method" in the various subfields in agricultural economics and rural sociology. The series follows the two-volume handbook of the Social Science Research Council, entitled "Research Method and Procedure," and like the latter is published under the direction of the Advisory Committee on Social and Economic Research in Agriculture of that Council.

Both because this is the initial volume of a series to which practically all American agricultural economists have been invited to make every significant contribution within their power, and because it is an attempt to explore from the standpoint of

agricultural economic research the much neglected field of public finance, it should be received with much interest by men interested in the field of agricultural economics.

The report is true to its title, and as a matter of fact is devoted to: (1) A demarkation of the relation of public finance to the various sub-fields of agricultural economics, to the general field of public finance and to government; (2) a classification of research problems in the field defined, and a discussion of the problems to be met and the practical, theoretical, and statistical issues involved in each of these fields.

The report tends to define the field of public finance broadly as dealing with the economics of public activity, that is, with the various productive activities pursued by the state for its citizens, and the means by which they are financed. It then proceeds to isolate and classify a series of specific research projects relating to the following general objectives:

Project groups A and B: to describe and explain the system of public finance including tax rates, mechanism, differences of burden in different areas and among different classes of population, and the changes in rates and burdens and benefits realized; for the purpose of better informing citizens and officials as to these facts.

Project groups C and D of the report: to compare the burdens of taxation borne by farmers, and the benefits received by them from public activities with the corresponding burdens and benefits received by other classes of citizens.

Group E of the report: to study comparatively, the scope of the field of public activities in relation to agriculture.

Group F of the report: to study the incidence, degree of shifting, and effect of different taxes on land value and on agriculture.

Group G of the report: to determine when specific public enterprises may wisely be undertaken and to determine the best methods of financing and administering these undertakings.

This group of projects lies squarely in the field of public finance and the only connection with agricultural economics is that farmers may live in the areas studied.

Project group H: to determine the most effective methods of administering and assessing taxes. These problems again are undoubtedly in the field of public finance and may be classified as agricultural economics only by virtue of the fact that they affect rural people and have been neglected in some localities, by workers in public finance.

Project group I: projects devoted to a study of the various forms of taxes affecting agriculture.

Project group J: a miscellaneous group. Conspicuous among these are: a plan for financing a state-wide minimum program of education; a project to develop a plan for basing the taxation of farm real estate on its prevailing annual net product; and a project for determining, measuring and explaining the attitudes of the public, particularly the farm public, towards various forms of public activity and their support.

It will be interesting to observe the effects of this report on the development of research in public finance in the United States. The field of public finance is difficult, complex, and one in which there is by no means a unanimous agreement as to what constitutes excellence in a system of taxation or expenditure, or agreement as to what constitutes justice or equality in tax levies. Considerations of administrative expediency, human behavior and attitude with relation to taxes have an important bearing on all tax problems. To be a master of the field of public finance is a challenge to the abilities and intelligence of any man. The reviewer is left with a feeling of

doubt as to whether these facts are sufficiently emphasized in the report. Many of the projects outlined, particularly in groups A, E, G, and H above, are of such a nature as to require the services of a man thoroughly trained and experienced in the field of public finance. If agricultural economists are led by this and the volumes in the same series to follow slavishly the technique and methodolgy set forth in fields in which they lack adequate experience and possibly training, the net effect on progress will be negative. On the other hand, the report will give those prepared to do research in the field of public finance much needed assistance with relation to the best approach to problems in public finance which affect the interests of agriculture or involve the use and analysis of agricultural data. Likewise, many of the projects which are primarily in the field of agricultural economics will be studied more successfully by agricultural economists because of the suggestions offered from the standpoint of finance. Properly used not as a substitute for complete training and good judgment on the part of the workers, but as a source of suggestion and as recording the results of an exploration and inventory of present thought and experience in the field, it will serve a very valuable purpose.

There is in the early part of the report a section on basic principles, concepts and measure. Its inclusion may be justified. The inclusion of certain parts undoubtedly is justified. The bibliography in this section is excellent and may well have been expanded along lines of economics as well as government. Part of the discussion in this section, however, particularly that on bases of taxation, is inadequate and incomplete. If this question were to be treated at all, it should have received adequate attention or the subject should have been passed over with references to some of the better discussions in the literature of public finance.

There are many excellent features of the report. First, there seems to be constant recognition of the limitations of statistical analysis, accompanied by excellent and comprehensive suggestions as to how various statistical and theoretical problems may be met. These suggestions are the largest single contribution which the report makes to our field. Another excellence in the opinion of the writer is the willingness of the authors to utilize methods of qualitative and theoretical deductive analysis. It is always a virtue to know when the data are inadequate for the use of statistical methods and when qualitative methods alone can add to our sum total of knowledge. The list of project titles themselves is a valuable and stimulating list.

While contributions are made to this report by a considerable number of economists, it is for the most part the product of the pens of Professor John D. Black, its editor, and of Dr. G. M. Peterson. The report possesses the logical coherence, unity and submission to a strong central editorial policy which characterizes a well-organized book and not at all the miscellaneous character usually possessed by a collection of contributions from different authorities. This is undoubtedly the greatest source of strength which the report possesses. The reader or user, however, must be on his guard not to regard the report as a symposium of varying points of view rather than the product of an editor who has drawn on the whole mass of contemporary experience in methodology, always with due credit to each contributor, and integrated it into a volume molded in the image of his own philosophy and point of view.

Judging by the results of this first volume, agricultural economists should look forward with anticipation to the series of special reports as giving promise of constituting, if properly used, a valuable contribution to the development of research in their field.

I. G. Davis

Connecticut Agricultural College

Communist and Cooperative Colonies, by Charles Gide. Translated by Ernest F. Row, New York: Thomas Y. Crowell, 1930. 222 pp. $2.50.

Professor Gide gives in this volume a brief description of the more important experiments in the foundation of colonies of the kind indicated by the title. Writers have for many years pictured the ideal life developed in a self-contained community. The *Republic,* by Plato, *Utopia,* by Thomas More (1516), *Voyage en Icarie,* by Cabet (1840), and *A Modern Utopia,* by Wells (1905) shows the persistence of the idea. There seems to have been none published in the past ten years.

In the introductory chapter, the Ceaseless Longing for Communitarian Life, the author calls attention to the fact that in spite of the numerous failures, there are always idealists willing to try the experiment of setting up a social group in which good will and justice shall be the guiding principles.

The chapters on animal communities and primitive communities serve as a starting place for the main body of the discussion which is devoted to communities most of which were found in America. Some colonies were started 400 years ago, but the greatest number were products of the nineteenth century. Only a few are of more recent origin.

The classification of communities as religious, socialistic, anarchistic, agrarian, and cooperative is based largely on the form of control, the ends sought being quite similar in all cases.

A fundamental characteristic of all communities has been the common ownership of land. In the monastic communities there was no private property while at the other extreme there were groups in which land was the only form of community property. Community housekeeping has characterized many groups but by no means all of them. Most of the organizations have emphasized agriculture and only a few have been predominantly industrial.

The last chapter is devoted to the author's generalizations: (1) "Their aim (these groups) is also to create an environment in which conditions of work shall be easier and pleasanter than in the existing state of society, at any rate for the working classes." . . . "These requirements do not seem chimerical but they do appear capable of being met without going as far as real communism." (2) "It is particularly essential, however, to abandon the hope that was cherished by Owen, Fourier, and all the other founders of colonies—the hope that man would be changed by his environment." (3) "The only communities which we have seen to be successful, or at least live for any length of time, are those which were produced by a personality strong enough to gain the obedience of his followers, and even this discipline has hardly ever been obtained except when it was founded upon religious discipline or even fanaticism." (4) Membership recruited from the disgruntled elements never got along very well. "Those who have found it difficult to accommodate themselves to the existing state of society will find it still more difficult to live in a community in which isolation is much harder than in our great cities."

The author's final paragraph seems to be hardly justified by the experiences of the failures or the partial success of those now in existence.

"It is by no means improbable that some day there may be one (a society) that will live on permanently. I do not even consider it unlikely that either this century or next communitarian associations, or integral cooperative societies, if you like, may occupy as large a place in the world as the religious communities did in the Middle Ages." This is offered simply as an opinion and there is no evidence that the experiments are on the increase, in fact it would seem that there are fewer now than at any

time during the past hundred years. The description of this phase of economic experiment by so eminent an economist as Professor Gide is a valuable contribution to our economic literature.

O. M. Johnson

Bureau of Agricultural Economics

Production Organization, by John D. Black and Albert G. Black. New York: Henry Holt & Company. 1929. pp. xi, 646. $3.75.

This book is a revision of the senior author's Introduction Production Economics, published in 1926, and reviewed in April, 1927 issue of the JOURNAL OF FARM ECONOMICS by Jesse W. Tapp. The scope of the present book is the same as the scope of the Introduction to Production Economics. There has, however, been considerable rearrangement of the order of presentation, and some condensation. The Introduction to Production Economics contained 975 pages, with thirty-two chapters; "Production Organization" contains 646 pages, with twenty-five chapters. A part of the condensation has been accomplished by omitting (1) some of the "refinements of analysis" which, as stated in the preface, most teachers have found too difficult for elementary students; (2) the suggestions for further reading; and (3) some of the problems given at the end of each chapter in Production Economics.

This book, as was the case with its predecessor, is intended to serve as a text for beginning courses in economics. From this standpoint the revision is a material improvement over the original edition. It is divided into three parts: I. The Field of Production; II. The Principles of Combination; and III. The Social Medium of Production.

Part I is practically identical with the corresponding part of the original edition, taking up first the nature and scope of economics, followed by an analysis of the production process and a description of the "forms which production takes and the relative importance of various fields of production," especially in the United States, and closing with a twenty-five page review of Economic History of the World. Part I may be looked upon largely as introductory material necessary for the understanding of terms and concepts used in the remainder of the book. In the discussion of the field of economics, in Chapter I, the science of organization is defined as a part of economics, thus justifying the title of "Production Organization." The individual point of view and the natural and social point of view are discussed and distinguished in this chapter, giving the basis for the organization of the later parts of the book. Part II has to do essentially with the "private economics," while the social point of view is given special consideration in Part III.

Part II, the Principles of Combination, opens with Chapter V, the Principles of Diminishing Physical Outputs, and closes with Chapter XVI, Combinations of Business Units. This part contains a very thorough and logical analysis of production from the standpoint of the entrepreneur, and is, without a doubt, the strongest part of the book. The principle of comparative advantage which formed the basis of the opening chapter in Part II, Production Economics, is given a considerably less prominent place in the present book. It is first introduced in Chapter VIII, Combination of Individual Differences, and in Chapter VII, Individual Differences in Productivity, the authors have attempted a more thorough analysis of marginal productivity than is given in most texts. A considerable part of the chapter is devoted to an analysis designed to show the variations in productivity which are due to variations in the input elements. In the words of the authors: "Economists have in general rather neglected differences between individuals in working out their analyses of the combination of

elements. . . . Our purpose in this chapter is to analyze these differences between individuals." The concepts of "capacity" and "efficiency," and their relation to marginal productivity are also set forth in this chapter.

This chapter is a decided improvement over the corresponding chapter in "Production Economics," but it seems doubtful if freshman and sophomore students who are being introduced to the marginal analysis for the first time will be able to understand many of the points in the chapter. In fact most advanced students would have to give this chapter much careful study in order to understand it completely.

In Chapter VIII, the Principle of Comparative Advantage is elucidated in much the same manner as in Production Economics. In addition, the relation between Individual Differences in Productivity and the Principle of Comparative Advantage is analyzed and the statements made that: "The principle which is fundamental to the problem of combination of grades of productivity is the principle of Comparative Advantage. *The grades of any element of production tend to find that combination with grades of other elements in which their ratio of advantage is the greater.*"

The four chapters, V to VIII, inclusive, contain a logical and well-rounded development of the basic principles of the Economics of Production, and even though much of these chapters may be too difficult for beginning students to comprehend fully, every graduate student in Agricultural Economics and many who have passed the "student" stage would profit by mastering their contents, or the contents of the corresponding chapters in "Production Economics."

Part III of the book, the Social Medium of Production, is designed to show "how the principles stated in Part II work themselves out in actual affairs." The first three chapters of this part are devoted to a further discussion of the elements of production (1) The Human Agent, (2) The Earth, and (3) Capital Goods and Power. There is also a chapter, Risk as a Factor of Production, in which it is shown that "risk" is an outgrowth of the dynamic nature of economic society. The chapters on Marketing Organization, Financial Organization and Transportation furnish a brief introduction to those phases of economics. The contents of these chapters will doubtless be very useful to students who go no further in the study of economics and should form a helpful background for more advanced courses for students who specialize in economics. Part III is considerably more readable than much of the preceding part of the book.

The contents of the book are intended to "serve as material for half-year beginning courses in economics." It is questionable whether the subjects as presented in the book can be covered properly in a course of that length. The authors state that the "Introduction to Production Economics" cannot be covered in less than a full year. "Production Organization," while containing 300 fewer pages, covers the same ground, only the more intricate parts of the analysis, which are beyond the grasp of elementary students, have been omitted.

In the Foreword, Dean R. A. Stevenson of Minnesota says, "While the book has been prepared primarily for one section of a freshman course, it contains a well-rounded body of materials that will be found adequate for an independent course in the elements of production economics."

In an independent course in the Economics of Agricultural Production, some of the discussion which is found in "Production Economics," but omitted from "Production Organization" would be valuable. Many agricultural illustrations of the application of the principles developed have been replaced by illustrations from other industries. For instance, in Production Economics the Principle of Diminishing Physical Outputs is illustrated by showing the outputs accompanying additional im-

puts of seed on a fixed area of land, while in Production Organization the illustration has been changed to one of outputs accompanying additional imputs of labor applied to a line of canning machines. From the chapter on Choice and Location of Enterprises, in the revision all agricultural illustrations have been omitted. This chapter in "Production Economics" contains a well-worked-out statement concerning Supplementary Enterprises in Farming, and a statement on Where to Locate a Farming Business, both of which have been omitted from "Production Organization."

The corresponding chapter in "Production Economics" also contained a seven-page discussion of The Cost Accounting Method which does not appear in the revision. This discussion points out that while "cost data have many important uses in production economics . . . the cost accounting method is usually not a satisfactory method for determining what enterprises should be combined and in what proportions." It is especially important that students and researchers in the Economics of Agricultural Production understand the limitations of the use of cost accounting data in that field, and it is to be hoped that the omission of the discussion will not minimize its importance in the minds of Agricultural Economists.

H. R. Tolley

University of California

Secular Movements in Production and Prices: Their Nature and Their Bearing Upon Cyclical Fluctuations, by Simon S. Kuznets. Boston and New York: Houghton Mifflin Company. 1930. p. xxiv, 536. $3.50.

This book by Dr. Simon S. Kuznets of the National Bureau of Economic Research, Inc., is one of the series of Hart, Schaffner and Marx Prize Essays submitted in 1928. It is an attempt to inquire into the nature of the long-time movements in production and prices, as well as into their influence on cyclical fluctuations. In the beginning the author sets up the hypothesis, based chiefly on technical conditions, of the declining rate of growth of industries within a nation. Statistical data, such as the listing and dating of the important inventions, are offered in support, but the hypothesis being far from complete on these data, the author undertakes a more thorough inductive generalization from the statistical records of long-time movements in many industries. A test of the thesis that industries reveal a retarded growth over a long period, calls for a curve of secular trend which embodies this assumption. This is supplied chiefly by the logistic curve used by Pearl and Reed to study population growth, although in a few instances the Gompertz curve is used. An equation of declining trend, in which the direction of the logistic curve is reversed, is formulated for those industries in which a negative influence has been operating. The method of curve fitting is that of selected points, chosen usually from original data averaged for each nine year period. Curves of these types fit the data satisfactorily in most cases, and are accepted as representing the primary secular trend of all production series, which include some twenty for the United States, and such series as are available for the United Kingdom, Belgium, Germany, and France. Among the many items covered are wheat, corn, potatoes, cotton, anthracite coal, bituminous coal, petroleum, pig iron, steel, Portland cement, copper, zinc, lead, salt, locomotives, bank clearings, and other series particularly applicable to individual countries. Whenever data permit, the primary trend of the corresponding price series is also described. This is done by fitting a second degree parabola by the method of least squares. Relative deviations, computed from their respective lines of primary secular trend, revealed oscillations of considerable length in both the production and price series, which showed that the long-time movements had not been entirely removed. These

protracted periods of rise and fall are smoothed by means of a moving average passed through the relative deviations from the primary trend, and constitute what Mr. Kuznets calls the secondary secular movements. These secondary variations appear "because of a change in the scale of 'long' in the definition of long-time movements, and not because the line of primary trend diverges from the data within the same period." In the historical accounts of many of these industries, these secondary movements have been observed and traced without the use of elaborate statistical analysis. When the primary and secondary secular movements are eliminated, clear-cut cycles remain which are apparently free from long-time influences.

A detailed analysis of the secondary secular movements shows them to be substantially similar in the production and price series, with an average length of slightly more than twenty years and with a tendency for price movements to precede those of production. The apparent explanation that when prices rise the prospect of profitable sales will result in increased production is not acceptable in this instance, where the rise of prices is a prolonged movement concealed by many disturbances and where the concept of normal must be given its long-time significance. Granted an upward secondary movement in prices, an analogous movement in production may be expected as a result of the shift in the distribution of the national income, namely, the decline in the purchasing power of wage rates and the rise in profits incident to the lag in wages and supplementary costs. But to assume variations in prices as given, and explain movements in production as a parallel effect, renders the analysis one-sided, and the author attempts to find those factors in the present economic system which tend to perpetuate price increases even after the immediate stimuli have disappeared. Qualified by certain assumptions, these are found chiefly in the lag of production movements behind price movements, and the disparity in movements between industries producing consumers' and producers' goods. There are, however, factors which act as brakes on the continued upward movements of prices and production, and bring about a cessation of the rise and eventually a decline. Chief among these are the decrease in the productivity of labor, and the diminishing output of monetary metals and of metals entering circulation. Throughout this discussion of secondary secular movements the author points out again and again the fact that he is discussing these protracted swings of twenty or more years' duration and not the shorter cyclical fluctuations. Mr. Kuznets does not conceive of these secondary deviations, which arise neither from purely random changes nor from initial disturbances cyclical in character, as major cycles but rather as specific, historical occurrences.

The last step in the statistical analysis is the examination of the connection between the primary trend line for production series and the deviations from it. There seems to exist significant positive correlation between the rapidity of primary growth and the deviations from both the primary and secondary trend lines. The closest degree of correlation exists between the total deviations from the primary trend line and the latter's rate of growth. For the secondary secular movements and the rate of increase, the closeness of connection diminishes appreciably, while the correlation between the "pure" cyclical fluctuations and the rate of increase diminishes still more. In an attempt to account for the existence of a definite connection between rapidity of growth and amplitude of cyclical fluctuations, the author reviews a number of well-known business-cycle theories, for such light as they may throw on the problem at hand. He concludes that "the main reason for the connection between the cyclical fluctuations and the process of development is that both are manifestations of the economic activity of business men within the modern economic system. Conditions of rapid development, namely, the possibility and availability of numerous technical

changes, a comparatively high rate of profits, a comparative availability of funds for expansion, conditions of uncertainty, and the secondary phenomena invariably associated with these, induce comparatively violent business cycles.''

As a conclusion to the book, the author endeavors to take an objective view of his study in order to evaluate the significance of the method and the results from the standpoint of economic theory. A discussion of the present state of theoretical economics leads him to a consideration of the new dynamic economics which he visualizes as arising ''from the long vision of a statistician and the penetration of a theoretical analyst, framing a complete account of economic reality as it presents itself to our eye.''

The original production and price series for all products, together with the trend values and deviations, constitute an appendix of 200 pages, and furnish a valuable source of data.

Throughout this book the author appears extremely willing to recognize its limitations and shortcomings, and his conclusions in their original setting appear much less dogmatic than they do in the brief statement of a review. It is gratifying to find occasional exhibits of data in this study which do not behave in the manner which would have been expected, and to be assured by the author that the survey is not biased in the choosing of series merely because they conform with the assumptions on which the investigation started.

It is unusual to find a book which has as its subject matter the statistical analysis of approximately one hundred separate time series of production and prices, but which nevertheless shapes them into a unified whole in a satisfactory and logical manner so that the reader emerges with clear-cut ideas of what the author has attempted and accomplished. Much of the satisfaction which one derives from reading the book lies in the clear statements of the steps to be taken in the development of the study, and in the frequent summaries of the important conclusions of the analysis. These characteristics should do much to make the book readable by those whose statistical knowledge is deficient.

Dorothea D. Kittredge

University of Minnesota

Farm Children: An Investigation of Rural Child Life in Selected Areas of Iowa, by Bird T. Baldwin, Eva Abigail Fillmore, and Lora Hadley, Iowa Child Welfare Research Station. New York: D. Appleton and Company. 1930, 337 pp. Illustrated. $4.00.

An ''adventure in research.'' A ''beginning of a better understanding of children in rural homes and communities.'' Get a friend to read this book for you, and tell you the gist of it in some quiet half hour. Perchance, if he gives you the right perspective, you will yourself open, turn the pages leisurely to the conclusion, and read the whole chapter—six pages—on ''The Individuality of the Rural Community.''

You will find sketched in such radically contrasting colors two communities of about 150 farms each—the differing pigments showing up plainly in the physical and psychic characteristics of the children—that out of sheer curiosity you will start thumbing the book backward, to glimpse what the supporting evidence is like. After a while you will find yourself well into the opening chapters, whereupon you may decide that you will read that book sanely from beginning to end. And you may.

The ''adventure in research'' is significant to economists, although staged pretty much from the angle of educators. The economic ideals of the two communities studied appear to be blazoned on the surface of the farms in sufficient contrast to

satisfy the craving of an observer who is looking for a clean-cut battle royal between two opposing philosophies of life. The hardboiled economist, who is all for financial profits, regardless during profit-making of the amenities of life, will find himself willy-nilly backing community number one. The economist who recognizes "psychic income" as a legitimate asset and incentive will naturally champion community number two. Community number one turns out to win what it wills to win; but, contrary to the doctrine of the economist who holds that amenities automatically follow profits in country life, this community, in a history of a few generations, appears to have esteemed lightly the refinements of living, setting greater store by the crude resources of financial security and power. Community number two, reared on the same quality of soil and terrain, not fifty miles from community number one, has with evident purposefulness put much of its surplus wealth into the generally accepted institutions designed to receive the children of the homes and build up their psychic characteristics. Take your choice, economists. Life affords scope for either philosophy, and this piece of research would lead one to think that rural communities actually may, as the old-time schoolmaster used to dogmatize to his pupils, "make of life what one wills."

Lest you should think from what I have said that this study is just another crude survey of miscellaneous living conditions, under a set of miscellaneous categories, I must go on to indicate that the several hundred children of these two communities were subjected to precise examination by technicians of many kinds: the anthropometrist, getting weight-height indices; the nutritionist; dentist; physician; intelligence tester, by the various accepted methods; the educator, by achievement tests; the musician, by measures of musical talent; the speech specialist; and the like. And, furthermore, these quantitative indices are related mathematically by correlation methods. Tangibleness is evidently striven for at every point. Case study method supplements the measurement tests. In fact, the thing is an ambitious experiment in the synthesis of the findings of many specialists in study of the same children.

Many economists will quickly grasp the fact that this investigation of farm children is a "beginning" of research of a basic sort upon the human factor in the economics of agriculture. These children are surely growing into kinds of farmers by methods of care and training, and by unconscious stimulation. Is it not pertinent to the subject of economics that the type of man factor may be controlled by rational direction of the oncoming pre-farmer child? The economist who naïvely supposes that the man factor is at present receiving adequate attention in the agricultural sciences basic to the going economics of agriculture should not look into this book, unless he is prepared to stand a little shock to his presuppositions.

I have not attempted to point out the shortcomings of this study. It is confessedly an adventure and a beginning. As such, the authors merit congratulation.

Charles J. Galpin

Bureau of Agricultural Economics

Profitable Farm Management and Marketing for the Corn Growing States, by M. H. Overton and L. S. Robertson. Chicago: J. B. Lippincott Co., 1929. p. vii, 337. $2.00.

This book was written for use as a text in the secondary schools of the corn producing region. It has been developed to meet the special needs of vocational classes in high schools. In the introduction Mr. Z. M. Smith, State Director of Vocational Education of Indiana, states that the authors were successful in imparting four dis-

tinctive features to the book which show its value as a text in that region. To quote: "With this objective, [secondary school text], in view, the authors succeeded in imparting four characteristics to the text: (1) The book is especially suitable for use in the corn growing states; (2) it is essentially a high-school text; (3) it recognizes the value of job analysis in teaching; (4) it portrays the steps in marketing the various farm commodities."

The book covers the field of farm management in 18 chapters totaling 255 pages, and the field of marketing farm products in 6 chapters totaling about 100 pages. Much can be said of any text concerning its omissions and commissions, especially when it attempts to cover two fields as replete with teaching material as are these two, but enough facts and figures are woven into the book to make it usable as a text without much access to the many bulletins referred to at the close of each chapter. Illustrations are drawn mostly from corn-belt conditions, so that it fits admirably into the region for which it was written.

Each chapter begins with a brief statement of the subject matter covered by that chapter. Immediately following this is a list of questions and problems for study and discussion which serves the purpose of bringing to the students' attention the more important points to be gleaned from the chapter. Interspersed through each chapter additional questions are raised or problems suggested.

These devices are of use not only to the student but they also serve as a guide for the teacher in keeping the right perspective and balance for the course.

There is also added to each chapter a job number which corresponds to the chapter number. This job number is supposed to suggest a teaching set-up of the book which takes advantage of the "job analysis" procedure in presenting subject matter to secondary schools. The reviewer does not believe that the book has been strengthened by the addition of these "job" numbers, except in so far as this feature may appeal to those who believe all secondary school agricultural teaching should be done in the form of job analysis. Every few years a new teaching procedure sweeps the country, and the present period is still in the grip of the agricultural job analysis. An "operative job" can be easily visualized by the reviewer especially since a farm job is defined by the Federal Board for Vocational Education as "a complete unit of work, since it is something which can be started and finished quite independently of other similar units in the farm enterprise." The art of doing certain routine tasks or operations should be learned by each agricultural student if it is not already known.

A "managerial job" is not so easily visualized, however, as there is no art or single operation involved. It requires a knowledge of so many so-called operative jobs as well as a background of real science to make managerial decisions that the reviewer wonders if the student will not be confused rather than helped by this differentiation. He also wonders if the presentation of "managerial jobs" differs fundamentally from the so-called problems given us during our high-school days.

However, the reviewer does not consider this a criticism of the book so much as a criticism of a system which requires that a book be put on the job analysis basis whether or not it really adds to either the facts involved or to the method of presenting these facts.

It is also becoming more open to question whether any secondary school text should make general and unlimited reference to bulletins of different stations and of different departments of the Federal Government rather than to use the more permanently available sources of information, such as books. Many bulletins must of necessity be out of print—although this text cannot be criticized on that basis—and

the calls which come in to any station as a result of any general adoption of a book which makes plentiful use of bulletin references are impossible to fill. To illustrate the latter point, as a result of references to the bulletins of one station by a secondary school text, one teacher wrote in for 2,000 copies of bulletins so as to supply the classes with the desired references.

P. E. McNall

University of Wisconsin

The Future of Farming, by C. S. Orwin. London: Oxford; Clarendon Press, H. Milford. 1930. 156 p.

This book is a long-time outlook report for farming in England. Written for the general public quite as much as for farmers, the author has "indulged in a retrospect concerning the social and economic consequences of our (England's) national industrial policy . . . in an analysis of the present unsatisfactory position of agriculture in England, and the causes of it . . .; and in a forecast of the future of farming. . . ." The book is readably short, and though free of interest-dulling figures, the propositions are supported by selected illustrative details sufficient for the purpose. The book is informative, but its interest for American readers rests in the author's discussion of problems which we face in this country. Facts that have meaning for the English are worth our careful consideration, though our reaction necessarily be different.

England has become so thoroughly industrialized that only 7 per cent of its occupied persons in 1921 were engaged in agriculture. Ninety per cent of the population is concentrated in urban areas. Overseas trade must supply about 60 per cent of the food and most of the raw materials of industry. Agriculture in England is carried on mainly by hired labor. The higher wages of industrial workers tend to raise the standards of living of the farm laborers. "The real competitor of the farmer in an industrial country is the manufacturer for export . . . England has been committed for so long and so deeply to the policy that has wrought such havoc in the countryside that any change at this hour is almost unthinkable. Such tendency as is manifest, from time to time, towards a break with unrestricted free-trade serves only to accentuate the farmers' difficulties, for the principle of 'safe-guarding' is applied only to the manufacturing industries." These and other like propositions have a familiar sound.

"The decline in prosperity has proceeded to very various lengths in different parts of the country, according to the type of agriculture pursued and to the system of organization within it. The sickness from which farming is suffering stops at the point where the family-farmer predominates. It ceases also regardless of organization where the production is confined to commodities which do not come into direct competition with the Dominion or foreign producer's surplus. In fact it is now, and always has been, the capitalist farmer, working mainly on arable land for the production of small grains who is most seriously affected by the consequences of national economic policy. Other branches of capitalist farming may be affected from time to time."

The author suggests that agriculture "needs a new heart." "In manufacturing, industry processes and plant become obsolete and are jettisoned. Is it to be assumed that alone in the age-old agriculture industry finality in progress has been reached at last?

Is it certain that all the lessons of science have now been learned and applied; that every possible advantage has been taken of modern invention; that the modern

science of industrial organization cannot contribute something to the solution of latter-day difficulties? Can nothing other than state aid in one form or another suffice to save the plowland farmer from extinction? The author feels that the answer to these questions is "No," though he feels that agriculture in England will need help from the state, and that a long time will be needed for working out satisfactory solutions. Three instances of outstanding success achieved through radical departures from the current practice and farm organization of farmers around them are described in detail—farms that paid well over a long period during which other farmers were in the sloughs of despair.

The author argues for specialization of production, and for the factory type of farm organization. Diversification as it is sometimes interpreted in this country must be undertaken with full consideration of all the facts, lest it lead to dissipation of effort and of capital, hence to financial loss, but in the examples cited the specialization followed was not carried to the extent of one-crop farming, or complete dependence on one major enterprise.

One gets much information about farming in Europe and an interpretation of movements which may or may not have been previously entertained. Readers in this country will be interested not so much in the measures and devices suggested, which can hardly be adopted in this country without great change, as in the point of view, which is fairly summarized in two sentences. "Agriculture must follow the lead of other industries; it must be bound no longer by wornout conventions, but must shake itself free. Finality in farming progress has not and can never be reached; whatever the circumstances, the producer has before him a way to adjust himself to them if only he can find it."

S. W. Mendum

Bureau of Agricultural Economics

Die Zukunft des Roggens, von N. Jasny (*The Future of Rye,* by N. Jasny) Vierteljahrshefte zur Konjunkturforschung, Sonderheft 20, Berlin 1930, Reimar Hobbing, 108 pages.

In this recent publication, the German Institute of Business Cycle Research (Institut für Konjunkturforschung) presents a thorough investigation dealing with the changes in the position of rye in world economy and raises the question as to how the German agrarian policy of the prewar time and of recent years is to be judged in the light of these trends. In Germany and a number of other central and eastern European countries, rye is a very important cash crop, and the rye question therefore ranks first among the various agrarian problems.

After a short review of the biological and technical facts concerning rye growing and the utilization of rye, the author describes briefly the changes which have taken place in the important rye-growing and rye-consuming areas outside of Germany. For some countries the picture is not as complete as we should like to have it. The change of boundaries as a consequence of the peace treaties and the great changes in the methods of collecting statistical data make it indeed impossible for some European countries to make reliable comparisons between the present and prewar times. The most important and interesting part of the book is that dealing with the rye problem in Germany. The analysis leads to the conclusion that great mistakes have been made in German agrarian policy.

The main outlines of the book are as follows: Rye has been of declining importance in the world economy, other grains having more and more taken its place. There has been a decline in the utilization of rye in practically all its various uses.

Only the use of rye for feeding purposes seems to be comparatively stable. The forces which caused a decrease of rye production in most rye-growing countries did not work in Germany because high tariffs, in connection with the so-called import certificate system (a kind of export debenture), stimulated rye production greatly in prewar times. An increase of production of rye took place in the face of a declining human consumption. At the same time, an increased use of rye for feeding purposes was prevented by an unproportionally low tariff rate for feed grains. Only through an artificial stimulation of rye exports could the growing surpluses be disposed of. Jasny tries to prove by price comparisons that as a consequence of this policy, rye prices declined as compared with prices of other grains during the last five years before the war. He points out that rye farmers would have lost the advantage given to them by the last tariff increase in 1906 within a few years. The outbreak of the war prevented the consequences of the wrong tariff policy from showing to their full extent.

The German tariff policy since 1925—from the outbreak of the war until 1925 there were no agricultural tariffs—repeated in general the mistakes of the pre-war time. As before the War, there was only a small difference between the rye and wheat tariff. This meant that the more valuable product, wheat, was protected to a lesser extent than rye when the tariffs were effective. The import certificate system was also re-established. The result of this policy was that rye was favored and the expansion of the wheat acreage was checked. A good policy would have tried to work in the opposite direction.

Toward the end of 1929, the German grain policy was changed to some extent. The value of the import certificate was lower from that time on than the tariff rate, and in the summer of 1930 (after Jasny had finished his investigation), the import certificate on rye was abolished. At the same time, an effort was made to raise rye prices in Germany by an artificial increase of feed grain prices, making use of very high feed barley tariffs and a corn monopoly. These measures are hampering greatly the livestock farmers in northwestern Germany. The livestock industry in this part of Germany is dependent on purchases of feed grain, a great part of which has been imported until recently. The livestock producers in the neighboring countries are now in a much better competitive position, inasmuch as they have advantage from the low grain prices in the world market. Jasny thinks that the protection of the entire agriculture of Germany is impossible, and arrives at the conclusion that it is not in the interest of Germany as a whole to continue with the present policy.

The book contains a number of chapters with valuable and new information. The treatment of the rye situation in Russia and Poland is especially worthy of mention; also that part of the discussion of the German rye problem which relates to the surplus and deficit districts and the position of rye in German agriculture. The discussion of the use of rye as feed seems to be somewhat scanty, probably as a consequence of lack of data. The author has not tried to analyze statistically the factors affecting the price of rye. The short chapter on price comparisons (pp. 81-8) is not a comprehensive treatment. The rye market has a number of distinct characteristics resulting from the circumstances that rye production is concentrated in a small part of the world and that rye is a bread grain as well as a feed grain. Perhaps, a more intensive market analysis might have enabled the author to make his conclusions still more convincing. The book as a whole is a meritorious piece of work.

Frederick Sohn

Harvard University

NEWS ITEMS

Handbook on Public Finance Relating to Agriculture

The first number in the series on scope and method of research in the various sub-fields of agricultural economics and rural sociology was distributed late in December. It deals with research in public finance in relation to agriculture. The special advisory committee preparing this report consists of John D. Black, Eric Englund, M. Slade Kendrick, and R. Wayne Newton. It is reviewed in another section of this issue of the JOURNAL. The Advisory Committee on Social and Economic Research in Agriculture is anxious to receive suggestions as to how these reports can be made more useful.

The numbers in this series which will appear during 1931 or shortly thereafter relate to land utilization, agricultural credit, agricultural income, marketing of farm products, prices of farm products, farm management, farm population, farm family living, and rural social work. Work has also been started on a number of other sub-fields such as rural organization, transportation in relation to agriculture, index numbers in relation to agriculture, etc.

These are being distributed at the cost of printing and mailing. Advance orders were obtained for enough copies of the reports on public finance, land utilization and farm management to insure the financing of the publication. Only a few hundred more of the public finance number were printed than were covered by advance orders. Those wishing additional copies should send in their orders promptly to John D. Black, 472 Widener Library, Cambridge, Massachusetts. The number of these additional orders will serve as a guide in determining the number of copies to print of later numbers in the series.

The Agricultural Economics Society

A Conference of the Agricultural Economics Society was held at Wadham College, Oxford, during the week-end 27th to 30th June, about 40 members being present. The chair was taken by Mr. W. C. D. Dampier-Whetham, M.A., F.R.S., who succeeded Mr. R. J. Thompson, C.B., O.B.E., as President. The papers read and discussed at the Conference comprised the Presidential Address on "The Economics of Rural Land-owning," by Mr. Dampier-Whetham; "A Word for Cost Accounting," by Mr. J. Wyllie, of the South-Eastern Agricultural College; and a paper on "Research Methods in Agricultural Economics," presented by Mr. C. S. Orwin, M.A., on behalf of the Agricultural Economics Research Institute. In the course of his address, Mr. Dampier-Whetham dealt with changes in the economic position of rural landowners since the pre-war period, quoting figures derived from the study of estate accounts relating to a considerable area of agricultural land; he also discussed the position of landowners under recent legislation. Mr. Wyllie examined the place of Cost Accounting amongst methods of investigation into the economic position of the industry. In Mr. Wyllie's view the compilation of cost accounts has an important function to play in any scheme of advisory service which has as its object the assistance of farmers in the organization of their farms. Mr. Orwin considered the relation of various methods of research in the wide field of agricultural economics studies and dealt with some of the problems concerned with the relations between advisory work and the organization of wider statistical enquiries. A full discussion followed each of the papers.

The Proceedings of the Conference, together with those of the meeting of the Society held in London in December, 1929, will shortly be published in the Society's

Journal. The objects of the Society are to promote the study and teaching of Economics, Sociology, History, and Statistics in relation to the agricultural industry and to agricultural communities. Particulars as to membership may be obtained from Dr. J. S. King, York Buildings, Queen Street, Edinburgh.

Land Economics Association Formed

At a meeting of the American Economics Association in Cleveland, Ohio, on December 31 a new association was formed called the Land Economics Association. Dr. Richard T. Ely, Director of Economic Research of the Institute for Economic Research, was elected President. Dr. E. M. Fisher of the University of Michigan was elected Secretary, and Dr. Louis I. Dublin of the Metropolitan Life Insurance Company was elected Vice-President.

The purpose of this association is to gather together work that has been done by various organizations and in many places. This may be described as a work of synthesis. Another aim is to carry forward researches in this general field.

Reluctant as the members of this new association are to add another to the many associations already existing, it was felt that it was indispensable. The work that has been done in the field of land economics has failed to receive the general recognition that it deserves. It has not gotten into the public consciousness and has not produced the results that are desirable in shaping policies in the utilization of land.

It is believed by those who formed this association that it will give point and cutting edge to the work that has been done by agricultural economists in land economics, and the work that has been done by those interested in forestry policies and by others. Some good work has been done in respect to population by Professors Whelpton and Thompson in connection with the Scripps Foundation. This, however, stands by itself, and its vital significance to the prosperity of the country has not been appreciated because it has not been related, as it should be, to the utilization of land both in city and country.

Another thought that was brought forward at the Cleveland meeting was that the work in land economics needed rounding out, by the development of some fields that have been cultivated to some extent, especially urban land uses. It was emphasized that there was an interconnection between all land uses and that views and policies must be imperfect and one-sided unless the field as a whole is cultivated.

It is hoped that a large membership will be obtained. Those interested may correspond with Professor E. M. Fisher of the University of Michigan, Ann Arbor, Michigan.

Four regional agricultural outlook conferences were held this fall, on the general plan used at the annual outlook meetings in Washington, D.C., attended by extention specialists of the states in the several regions to discuss the outlook for the principal commodities with Bureau specialists prior to fall and early winter campaigns. The first was held in Washington, D.C., in September for the northeastern states; the second at Ames, Iowa, for the north central states, also in September; the third at Atlanta, Georgia, for the southern states, November 10-14, and the fourth at Salt Lake City, Utah, for the western states, December 15-18. The outlook reports developed at the Atlanta conference were printed later as Miscellaneous Publication 102, of the U. S. Department of Agriculture, besides being issued to the press at the time. The Atlanta meeting was unique in several respects. It was the first time the Bureau had ever sent men into the field to issue

an outlook report away from Washington headquarters. It was the first time the Bureau had ever issued an oulook report well in advance of the southern planting season, and is considered the biggest piece of work the Bureau has ever undertaken for the South. A fuller discussion appears elsewhere in this issue (pp. 160-162).

By December 10, the final date for the filing of applications for Federal licenses under the Perishable Agricultural Commodities Act, the Bureau of Agricultural Economics had received about 12,650 applications from handlers of fresh fruits and vegetables. In addition to the applications already on file it is expected that there will be several thousand from seasonal shippers, cooperative associations, canners, and others who are not engaged in any interstate transactions at this time of year and so are not required to be under license now. The Act applies to commission merchants, dealers, and brokers, but exempts the grower who ships only the products of his own growing and the retail grocer until his purchases in interstate commerce amount to more than 20 carloads in a single calendar year.

The University of Minnesota is planning a short course in Land Management for March 4, 5, and 6.

The third annual session of the Southeastern Economics Association was held at Atlanta, Georgia, following the Outlook Conference for the Southern States, November 14. At an afternoon meeting devoted to the agricultural economics phases the following papers were read:

1. The agricultural situation in Russia, by Professor C. B. Hoover, Duke University, Durham, North Carolina, with discussion by Dr. J. E. Turlington, University of Florida, and by Mr. L. H. Bean, Bureau of Agricultural Economics.
2. History of southern agriculture leading up to the present situation, by Mr. Everett E. Edwards, Bureau of Agricultural Economics, with discussion by Professor O. C. Ault, Nashville, Tennessee, and by Professor W. H. Mills, Clemson College, South Carolina.
3. What could be and should be done to improve the agricultural situation in the southern states—a program, by Professor Wilson Gee, University of Virginia, with discussion by Professor J. C. McAmis, Knoxville, Tennessee, and by Professor J. W. Firor, Athens, Georgia.

Informal discussion from the floor added to the interest in the program.

The various agencies in Massachusetts interested in land utilization, including the Massachusetts Forestry Association, State Department of Agriculture, Massachusetts Agricultural College, Harvard University, Clark University, the New England Council on Agriculture and Food Supply, etc., have organized a Massachusetts Conference on a land economic survey. Plans are being made for securing needed surveys and resurveys and for working out agencies for analysis of problems of land utilization that arise from time to time.

Proceedings of the two International Conferences of Agricultural Economists have been prepared for separate publication by Cornell University. Distribution is in the hands of the Department of Agricultural Economics and Farm Management, Cornell University, Ithaca, New York. Proceedings for 1929 are bound in cloth, 350 pages, priced at $2.50. Proceedings for 1930, bound in cloth, 950 pages, priced at $3.50 or included with membership fee ($5.00) in the organization.

The course offerings in agricultural economics at Harvard University will next year be expanded to include an intensive course in the economics of agricultural

production by Professor John D. Black, and probably also some intensive work in marketing organization and market prices.

A new course for graduates was given by Dr. E. C. Young at Purdue University this semester in International Competition in Agricultural Products. Nine students took the course for credit, and others audited the course.

Monday, December 15, marked the tenth anniversary of broadcasting market news by radio. Ten years ago on that date, the Bureau of Agricultural Economics, then known as the Bureau of Markets, broadcast in radio code the first national agricultural news report from the Washington radio station of the United States Bureau of Standards. The report was picked up by radio amateurs of the Radio Relay League, decoded by them, and dispatched by telephone and messenger to farmers in local areas.

The immediate success of this experiment led to a rapid use of radio to get to farmers up-to-the-minute reports on the farm markets. Wireless stations of the Post Office Department were used in the daily nation-wide market news broadcasts, and within three months of the initial experiment the farm reports were being broadcast from radio station KDKA.

From this modest beginning the radio market news service of the Department has grown until now more than 100 radio stations throughout the country broadcast daily from one to a dozen reports on the farm markets, the news being furnished by the Washington office and the various branch offices of the Bureau.

Under the guidance of the New Jersey League of Women Voters in cooperation with the various public agencies dealing with marketing problems and the various agricultural organizations of New Jersey, a consumer-producers marketing meeting was held December 12 at the State College and Experiment Station. About 100 people were present and discussed many possibilities in working out problems of distribution from the point of the mutual interest of the consumers and producers.

The University of California is inaugurating this year the plan of giving a group of courses in Agricultural Economics at the Summer Session.

Canadian agricultural economists were in attendance in larger numbers at the recent meetings of the American Farm Economics Association held at Cleveland.

Agricultural economists will participate for the first time in the annual meetings of the Canadian Political Science Association, which will be held in Ottawa toward the end of May. S. A. Cudmore, Dominion Bureau of Statistics, Ottawa, is Secretary of the Association, which includes both economists and political scientists in its membership.

Changes in assignment in the Division of Crop and Livestock Estimates, Bureau of Agricultural Economics, include the following:

A dairy section has been organized in the Washington office with John B. Shepard, in charge, assisted by J. L. Orr.

Floyd K. Reed, who has been working on livestock estimates in the Washington office, has been sent to Topeka, Kansas, as Agricultural Statistician to replace E. C. Paxton.

Richard C. Ross has been brought to Washington, D.C., from Seattle, Washington, to take charge of the work of the division in Maryland and Delaware.

D. C. Holbrook, Assistant Crop and Livestock Estimator, has been sent to the office at Seattle, Washington, from Portland, Oregon.

C. D. Palmer, who has been with the Chicago office of the Division of Livestock, Meats, and Wool, has been transferred to the office at Lafayette, Indiana.

Fred Daniels has been transferred from Boise, Idaho, to Las Cruces, New Mexico, to handle the work of Charles E. Null, who has been on extended leave of absence on account of sickness.

Preston Richards, who has been an instructor in the University of Missouri, has been appointed Assistant Agricultural Statistician for Missouri, in the place of J. Barnard Gibbs, who goes to Belgrade, Yugoslavia.

New assignments to foreign posts in the Division of Foreign Agricultural Service, Bureau of Agricultural Economics, include the following:

E. C. Paxton, formerly Agricultural Statistician for Kansas, has been sent to Australia, with headquarters at Sidney, and will have charge of foreign service activities in New Zealand as well as in Australia. The work consists of appraisal of world competition and demand factors on staple agricultural products grown in that territory, and in estimating crop conditions and yields.

Percy K. Norris, who has been in charge of grade and staple estimates at Atlanta, Georgia, will conduct special cotton studies in Egypt and the Sudan.

J. Barnard Gibbs, who has been working with crop and livestock estimates since November, 1924, will assist Louis G. Michael, Agricultural Commissioner at Belgrade, Yugoslavia.

Glenn S. Ray, recently Agricultural Statistician for Ohio, has been appointed Agricultural Commissioner in Argentina, with headquarters at Buenos Aires. He will be assisted by Charles L. Luedtke, who has been associated with the foreign work of the Bureau for the last ten years. They will also cover Uruguay, Brazil, and Chile.

Fred Taylor, returning to the Bureau after 11 years of technological cotton work in commercial organizations, will make a survey of the cotton manufacturing industry in Japan.

Owen L. Dawson, has been transferred from his post at Berlin, Germany, to be Agricultural Commissioner at Shanghai, China, taking the place of Paul Nyhus, who returns to Washington.

Fred J. Rossiter will go to Shanghai as Assistant Agricultural Commissioner. For five years he was manager of an agricultural school and farm mission in China. Since 1927 he has been at the Iowa Agricultural Experiment Station.

Clifford C. Taylor, recently head of the Department of Agricultural Economics at Virginia Polytechnic Institute, will study conditions in South Africa.

Developments at the Massachusetts Agricultural College in the Department of Agricultural Economics, include the creation of a new position, Assistant Extension Economist in Marketing, to which Ellsworth Bell has been promoted, and the appointment of two new statisticians, Miss Elizabeth Donley of Mt. Holyoke College, and Miss Marguerite Bicknell of Smith College. The staff now has thirteen members. Dr. A. E. Cance has been granted three months' leave of absence, which he will devote to travel in Italy, Russia, and Greece.

Mr. Joseph Ackerman, who took the master's degree in farm management in 1930, has been added to the staff of the Department of Farm Management at the University of Illinois as Extension Specialist.

Dr. B. W. Allin has joined the Division of Agricultural Finance, Bureau of Agricultural Economics, and will work in the field of farm taxation, having previously been with the Forest Taxation Inquiry, U. S. Forest Service, at New Haven, Connecticut.

Mr. Ray M. Barrett, Michigan Agricultural College, 1926, and more recently employed in Smith-Hughes work in Michigan, is temporarily employed on research at the University of Illinois, and will pursue graduate study during the second semester.

Mr. Arsenio M. Bayla, of the Bureau of Plant Industry, Department of Agriculture, at Manila, Philippine Islands, has returned to the Islands after four years of study of agricultural economics at the University of Wisconsin. The Philippine Department of Agriculture has made only a small beginning in the field of economics, and Mr. Bayla expects to expand this work.

Professor M. R. Benedict is helping in the preparation of reports on scope and method of research in transportation and credit.

Mr. Ezra T. Benson has been appointed to the position of Extension Specialist in Farm Management, University of Idaho. Mr. Benson is a graduate of the Utah College of Agriculture, and has the master's degree from Iowa State College.

Mr. Knute Bjorka has joined the Division of Livestock, Meats, and Wool, Bureau of Agricultural Economics, as Agricultural Economist, and will study the problems of direct marketing of livestock. Last year Mr. Bjorka was engaged in marketing research at Brookings Institution, Washington, D.C., having previously been doing research work at Iowa State College for more than six years.

Mr. George B. Clarke, formerly instructor in Agricultural Economics at the University of Minnesota, was given the doctor's degree last summer and joined the staff of the Connecticut Agricultural College in September.

Mr. Ralph Cole, of the Farm Management Extension Service, University of Nebraska, has been on leave of absence for the first semester to do graduate work at the University of Illinois.

Mr. Robert Cowan was appointed Extension Economist in Farm Marketing, State College of Washington, with headquarters at Pullman. He was transferred from the position of County Agent in Spokane County, Washington.

Mr. J. B. Cunningham, a graduate of Purdue University, who has served as manager of the Mooseheart Farm in Illinois and has been for several years county agent in Noble County, Indiana, has been employed as field man for the fourth group of 200 farmers in the Farm Bureau-Farm Management Service in Grundy, LaSalle, Marshall, and Putnam counties, Illinois, which has been organized for a four-year period.

Mr. Albert Maxey Dickson, a graduate of Southern Methodist University, Dallas, Texas, and recently with the Bureau of Agricultural Economics working on grade and staple estimates at Dallas, has joined the staff of the Federal Farm Board and will study the cotton gin situation in Texas.

Mr. Lawrence A. Dougherty is now engaged in extension work in New Hampshire. He spent part of last year in graduate work at the University of Minnesota.

Mr. Morris Evans, of the Department of Agricultural Economics, Kansas State Agricultural College has been granted sabbatical leave for graduate work in economics, which he is taking at the University of Illinois.

Dr. M. J. B. Ezekiel, Assistant Chief Economist of the Federal Farm Board, is on leave of absence, and is spending the year in Europe as the holder of a Guggenheim Memorial Fellowship. He expects to return in September, 1931.

Mr. F. A. Fisher, a graduate of the University of Illinois in 1911, who served on the staff of the University of Illinois and as Farm Adviser in Illinois, is field man for the third group of 220 farmers in the Farm Bureau-Farm Management Service in Henry, Knox, Peoria, and Stark counties, Illinois, which was organized a year ago.

Mr. O. M. Fuller has been made Extension Economist, Market Information, at North Dakota Agricultural College. The Market Information Service of the Bureau of Agricultural Economics was established with a leased wire in October, 1930, and the service is being extended to the state by daily and weekly press releases and by radio. The Market Information Service supplements the monthly releases of the *North Dakota Outlook.*

Mr. Walter G. Griffith, recently of the staff of the Montana Agricultural College, has accepted a position with the Department of Farm Organization and Management of the University of Illinois, and will devote part time to graduate study.

Mr. A. Gosselin, Laval University, B.A.; Montreal University, B.S.A.; Division of Field Husbandry, Central Experimental Farm, Ottawa, has been transferred to the Agricultural Economics Branch, Department of Agriculture, Ottawa, with the rank of Agricultural Economist. Mr. Gosselin was engaged in cost of production studies at the Experimental Farm, and is now working on apple production in Eastern Canada.

Dr. Floyd H. Harper, recently a special expert of the U. S. Tariff Commission in investigational work on agricultural commodities, has joined the Division of Cotton Marketing, Bureau of Agricultural Economics, where he will work on the grade and staple estimates.

Mr. A. C. Hoffman, recently a graduate student at Harvard University, has been appointed Assistant Professor of Agricultural Economics at the University of Wisconsin, for marketing extension. He was formerly in the Kansas Agricultural Extension Service.

Mr. E. C. Hope, University of British Columbia, B.S.A.; Cornell University, M.S., formerly lecturer in Agricultural Economics at the Ontario Agricultural College, Guelph, has joined the staff of the Farm Management Department, University of Saskatchewan, Saskatoon, Saskatchewan, as Assistant Professor of Farm Management.

Mr. George T. Hudson, who has a B.S. degree in Agricultural Economics from the University of Missouri, was employed by the University of Idaho as Assistant Extension Economist in Marketing on December 15, 1930. Mr. Hudson has been employed by the Armour Economic Research Division for the past three years and comes to Idaho with considerable practical experience with dairy and poultry products.

Mr. Einar Jensen, formerly of the Royal Agricultural College of Denmark, assisted by a two-year fellowship grant from the Rockefeller Foundation, is working at Harvard University on an analysis of the economic organization of Danish agriculture, using material that was collected in Denmark before coming here.

Mr. L. E. Kindt, University of Alberta, B.S.C. in Agriculture, University of Minnesota, M.A. (Agric. Econ) is in charge of an Economic Survey of the Range Sheep Industry in Western Canada, a project of the Agricultural Economics Branch of the Dominion Department of Agriculture.

Mr. Elgin E. McLean has been called back to the University of Missouri to be Extension Instructor in Agricultural Economics, employed on a farm management route in Atchison and adjoining counties. From June, 1929, until November, 1930, Mr. McLean has been at the Alabama Polytechnic Institute.

Professor Bruce L. Melvin, formerly of Cornell University, is making use of his sabbatical year by combining study with assisting Professor John D. Black with the preparation of reports on scope and method of research in farm population and rural organization for the series being prepared under the auspices of the Social Science Research Council.

Miss Margaret Milliken, formerly an instructor in Agricultural Economics at Stanford University, is now with the Federal Farm Board, at Washington, D.C., where she will make special studies of business conditions in various countries and prospects for future developments in each, in cooperation with the Bureau of Foreign and Domestic Commerce and the Foreign Agricultural Service.

Mr. A. E. Richards, University of British Columbia, B.S.A.; University of Wisconsin, M.S. (Agric. Econ.), Experimental Farm, Agassiz, B.C., has been transferred to the Agricultural Economics Branch of the Department of Agriculture at Ottawa with the rank of Agricultural Economist.

Mr. R. C. Ross, who has been engaged in teaching and research in Farm Management at the University of Illinois, has been made specialist in Agricultural Economics at that institution.

Mr. Bruce Silcox, who has been taking graduate work at the University of Wisconsin, has joined the staff of the University of Minnesota to do extension work in marketing.

Mr. P. L. Slagsvold, formerly Instructor in the School of Business Administration, University of Minnesota, has become a member of the Department of Agricultural Economics of the Montana State Agricultural College. He received the doctor's degree from the University of Minnesota in December.

Mr. W. B. Stout, who received the doctor's degree at Ohio State University in August, 1930, has been appointed Assistant in the Economics Department of the Ohio Agricultural Experiment Station.

Mr. F. H. Turner, a graduate of the University of Wisconsin with the master's degree, has accepted the position of Assistant Extension Economist, Farm Management, at the North Dakota Agricultural College, succeeding O. M. Fuller.

Mr. L. A. Vennes, who has been engaged in educational work for the National Dairy Council, has been appointed Field Agent in Marketing at the University of Kentucky.

Mr. Henry J. Wadleigh, a graduate of Oxford University who has done post-graduate work in economics at the London School of Economics, at Kiel, and at the University of Chicago, has been added to the staff of the Federal Farm Board and will work on economic analyses, particularly with reference to price insurance.

Mr. Emmet H. Welch, recently Fellow and Instructor in Statistics at the Bureau of Business Research of the University of Pittsburgh, is with the Federal Farm Board conducting research relating to agricultural commodities.

Mr. Gordon H. Ward, who spent last year completing work for the doctor's degree at the University of Minnesota, is now engaged in extension work in agricultural economics in Virginia.

Mr. Clinton F. Wells has been transferred from market news service work in California to the Division of Statistical and Historical Research, Bureau of Agricultural Economics, at Washington, D.C., assigned to studies of the effect of the tariff on agriculture and agricultural prices. Mr. Wells is a graduate of Stanford University with a master of arts degree.

Mr. J. E. Wills, who has been a Smith-Hughes teacher in Illinois, has been added to the staff of the Department of Farm Management, University of Illinois, replacing R. I. Nowell who went to the Federal Farm Board.

Mr. H. H. Willis, since 1924 leader of the cotton testing project of the Bureau of Agricultural Economics, with headquarters at Clemson College, South Carolina, has resigned to become Director of the Textile Department of Clemson Agricultural College.

Professor Fred R. Yoder, of the State College of Washington, has been granted a year's leave of absence to serve with the Laymen's Foreign Missions Inquiry Commission as rural economist and sociologist in Japan.

Dr. H. N. Young has been designated Acting Head of the Department of Agricultural Economics at Virginia Polytechnic Institute since the resignation of Dr. Clifford C. Taylor in November.

Dr. Whitney Coombs and his little daughter, Betty, were struck by an automobile and killed on November 8, at Canton, New York, where Dr. Coombs was Head of the Department of Economics, St. Lawrence University. Dr. Coombs was engaged in studies of farm taxation in the Bureau of Agricultural Economics from September, 1926, to September, 1929.

TWENTY-FIRST ANNUAL MEETING OF THE AMERICAN FARM ECONOMIC ASSOCIATION

The twenty-first annual meeting of the American Farm Economic Association was held in Cleveland, Ohio, at the Cleveland Hotel, December 29 to 31, 1930.

The first session convened at 10:00 A.M. on December 29. At this session the following committees were appointed by President H. C. M. Case:

Nominations: G. F. Warren, H. C. Taylor, and B. H. Hibbard.

Resolutions: O. G. Lloyd, J. Coke, and H. B. Price.

Audit: E. B. Hill and O. R. Johnson.

The first business meeting convened at 9:15 A.M. on December 30.

The minutes of the previous meeting were approved as printed in the JOURNAL OF FARM ECONOMICS, January, 1930, page 201.

The report of the Secretary-Treasurer was read and accepted.

It was moved, seconded, and carried that the Executive Committee of the Association be enlarged to include the four immediate past Presidents of the Association in addition to the active officers.

It was moved, seconded, and carried, that associations of 10 or more members in a state or region may be recognized by the Executive Committee as a local chapter of the American Farm Economic Association. Such locals may admit as members only persons who are members of the American Farm Economic Association but they may admit associate members on such conditions as they desire.

After discussion, it was moved, seconded, and carried, that the Executive Committee investigate affiliation with the American Association for the Advancement of Science and report back to the general meeting of the Association.

It was moved, seconded, and carried, that the American Farm Economic Association join with the American Economic Association and affiliated societies in their proposed plan for selecting the annual meeting places of these associations.

This business meeting was adjourned at 10:00 A.M.

The second business meeting of the Association was convened at 9:30 A.M. December 31.

The report of the Corn Borer Committee was read and accepted. The report of the Audit Committee was read and ac-

cepted. The report of the Resolutions Committee was read and the following resolutions were adopted:

Be it resolved: That the officers and committees of the American Farm Economic Association be commended for the efficient administration of the affairs of the Association, for the high standard of the JOURNAL and the satisfactory arrangements for the 1930 meeting.

We particularly express our appreciation to local committees and others responsible for this meeting and suggest that the Secretary convey our appreciation to such parties.

WHEREAS, International Agricultural Economic Conferences, such as the one held at Cornell University in 1930 and the entertainment for visiting Agricultural Economists promote a better understanding of the conditions in foreign lands, be it resolved that this national association commends those responsible for the 1930 conference and recommends that the Association use its auspices to promote a better understanding between those engaged in Agricultural Economics in the different countries.

Be it resolved: That the Association endorse the idea of further research in Agricultural Economics which will enable farmers better to adjust farm organization to meet changing economic conditions and in this connection we desire to express to Hon. Victor Christgau our appreciation of his presentation of some legislative proposals affecting such research.

Be it resolved: That we express to Doctor J. S. Davis our appreciation of his interpretation of the efforts of the Federal Farm Board to improve the marketing of farm products.

Be it resolved: That the incoming administration consider the advisability of inviting the American Society of Farm Managers to hold its annual meeting at the same time and place as the American Farm Economic Association.

The report of the Nominating Committee was read. In accordance with a motion, moved, seconded, and carried, the Secretary-Treasurer was instructed to cast one ballot for the election of each of the following officers for the year 1931:

President—O. C. Stine, Bureau of Agricultural Economics.

Vice-President—F. P. Weaver, Pennsylvania State College.

Secretary-Treasurer—W. I. Myers, Cornell University.

It was moved, seconded and carried, that the National Association of State Marketing Officials be invited to meet at the same time and place as the American Farm Economic Association.

It was moved, seconded, and carried, that this Association ex-

press its sincere thanks to the officers of the Northern Ohio Food Terminal Association for their courtesy to its members.

The program was carried out as planned. Although the seating capacity of the rooms assigned was inadequate for the first few meetings, the hotel arrangements were, in general, very satisfactory. The attendance for the various sessions was as follows:

December 29:

morning	200
afternoon, round table on Farm Management Extension	150
afternoon, round table on Marketing Transportation	100
evening, joint meeting with the American Economic Association	300

December 30:

morning	200
joint luncheon with American Sociological Association	150
afternoon, joint meeting with the American Statistical Association	250
evening	150

December 31:

morning	125
luncheon	150
afternoon	75

At a meeting of the Executive Committee it was decided to increase the size of the JOURNAL to 750 pages for the year 1931 but to publish only four numbers.

H. E. Erdman of California was selected to continue as editor of the JOURNAL of FARM ECONOMICS for the year 1931.

The reports of the Secretary-Treasurer, of the Editor, and of the Corn Borer Committee are appended.

W. I. MYERS, *Secretary*

Report of the Secretary-Treasurer

Statement of receipts and expenses for the year ending December 20, 1930

Receipts

Receipts from dues	$ 4,019.64	
Back numbers of the JOURNAL	296.68	
Interest on balances	168.20	
Total receipts		$ 4,484.52

Expenses

JOURNAL OF FARM ECONOMICS:		
Vol. XII, Jan., April, July	$ 1,959.55	
Reprints	182.47	
Total Vol. XII	$ 2,142.02	
Back numbers of JOURNAL purchased	24.25	
Refunds on overpayments	24.25	
Postage and envelopes	157.01	
Stationery and office supplies	33.40	
Badges for members	13.00	
Joint expenses—1929 annual meeting	86.88	
Expenses of Secretary-Treasurer to Washington meeting	49.04	
Miscellaneous expenses	26.14	
Total expenses		$ 2,555.99
Excess of receipts above expenses for year		$ 1,928.53
Balance, December 20, 1929		$ 3,463.58
Balance, December 20, 1930		$ 5,392.11
Invested as follows:		
Checking account	$ 1,231.31	
Savings account	160.80	
Income shares, Ithaca Savings and Loan Assn. (5%)	4,000.00	
	$ 5,392.11	

As a result of the year's operations the Association shows an increase in cash of $1,928.53. From this should be deducted the costs of printing the October issue and the reprints for authors, amounting to approximately $700. These bills had not been received by December 20, 1930. There are no other bills outstanding against the Association except for expenses in connection with the present annual meeting.

Receipts for 1930 show a decrease of $230.81 from those of the preceding year, due to the elimination of associate membership and the consequent slight decrease in total membership.

Including an estimated expenditure of $700 for the October issue, total expenses show a decrease of $394.21 from the previous year. This decrease in expenses was due principally to the fact that no handbook was printed in 1930, and that the four issues of the JOURNAL included 658 pages as compared with 702 pages for the previous year. From 1,200 to 1,250 copies of each issue of the JOURNAL were printed in order to maintain a generous reserve to meet the requests for back issues from new members.

The elimination of associate membership was responsible for a slight decrease in active membership during 1930. Comparative membership figures for the beginning and end of the past year are as follows:

	December 20		
	1929	*1930*	*Decrease*
Total members	974	943	31

There were 72 delinquent members as of December 20, 1930. Necessity for sending out repeated bills for overdue membership dues considerably adds to the work of the Secretary-Treasurer's office.

Further details on classification of membership as of December 20, 1930, are as follows:

	Total
Individuals	650
Libraries in the United States	123
Corporations in the United States	56
Foreign libraries	101
Foreign corporations	13
Total	943

The ten leading states in total membership as of December 20, 1930 are:

District of Columbia	112
New York	76
Illinois	71
California	35
Ohio	29
Indiana	23
Minnesota	21
Iowa	19
Wisconsin	19
Pennsylvania	18

The number of foreign members of the Association shows a steady and gratifying increase. The JOURNAL now goes regularly to 34 different foreign countries. The leading countries in membership are:

British Isles	35
Canada	32
Japan	29
USSR	26
Germany	14
South Africa	9
New Zealand	7

In spite of a slight drop in total membership occasioned by the elimination of associate membership at a reduced rate, I believe that this change was in the best interests of the association. Many of the associate members have changed to active membership.

The most important need of the American Farm Economic Association is for a larger active membership. With increasing interest in agricultural economic work and larger staffs engaged in work in this field, it should not be difficult to obtain a considerable and healthy increase.

Respectfully submitted,

W. I. MYERS, *Secretary-Treasurer*

Report of the Editor of the Journal

The JOURNAL in 1930 contained a total of 657 pages as compared with 704 the previous year. The decrease is explained by the fact that the proceedings of the annual meeting contributed about 100 pages less this year than last. The papers read at the twentieth annual meeting were published in the first three issues, and took up 50 per cent of the space of the JOURNAL as compared with 62 per cent in 1929. The editor hoped to be able to publish the 1930 proceedings as a separate issue and to publish four somewhat smaller issues of the JOURNAL containing only contributed material. However, financial considerations will prevent this.

The "notes" section, begun in the April issue of 1929 was continued under Dr. Black's immediate supervision and was nearly doubled in number of items and number of pages. The editor would like to see this section further developed along the lines outlined by Dr. Black in the April issue of 1929.

An attempt was made to have as many as possible of the more worth while books reviewed. It is not always possible from the publisher's announcements to tell whether a book is worth while. Hence some good books have been overlooked. The editor should be glad to have his attention called to new books that will be of particular interest to our readers. Plans for the coming year involve not only the improvement of the book reviews section with reference to American publications but to include outstanding foreign books.

The lists of candidates for degrees was again compiled by Dr. F. A. Pearson. It was published in two issues because a considerable number of lists from foreign countries arrived too late to be included in the July issue.

The "news items" section was handled by Mr. S. W. Mendum and through his efforts was substantially enlarged. Thanks to the hearty cooperation of correspondents in the various states the number of items was increased nearly two hundred per cent. This section can be further enlarged and improved if correspondents will give slightly more information about each item than has been given in the past, and perhaps omitting certain minor items. It is of minor interest to our readers that Jones has been promoted to the rank of associate professor. On the other hand it is of real interest not only to know that Brown is going on a special mission to Siam but to know just what sort of mission it is.

SPACE DISTRIBUTION IN THE 1930 JOURNAL

	Items	*Pages*
Papers read at the annual meeting	25	294
Discussions	—	34
Other major articles	9	135
Notes	28	69
Book reviews	15	30
Lists of candidates for advanced degrees	—	27
News items	—	32
Reports, notices, etc.	—	20
Blank space, approximately	—	16
Total pages published		657

The editor must admit some disappointment in the quality and number of articles contributed voluntarily during the year. He realizes, of course, that most of the

members are writing officially for publication at their respective institutions but hopes that more will take time to develop for the JOURNAL certain new ideas that contribute to the body of theory involved in the field.

Contributions are, of course, welcome from the younger men as well as from others. The younger men in particular are urged to have their papers read and criticized by some competent colleague before submission to the editor. The editor hesitates to suggest corrections in manuscript which amount to recasting sentences in order to make good English, and particularly hesitates to suggest changes which may modify the ideas involved since this is likely to lead to the feeling that he is excluding material because it does not conform to his own notions. On the other hand, he is expected to maintain and improve the standard of quality of the JOURNAL. Yet to maintain a high standard requires that many otherwise good articles be returned to the authors for further work. This applies particularly, but not solely, to the younger authors who are often inclined to stop just short of making a point, of clarifying an argument, or of eliminating inconsistencies.

The editor desires to apologize for certain errors, derelictions, and omissions which may be ascribed in part to the fact that this was his first year on an editorial job which was unexpectedly thrust upon him after he had already assumed a full program of work, including Sundays and holidays.

Finally, he bespeaks your cooperation by suggestion or contribution for a better JOURNAL in 1931.

H. E. ERDMAN, *Editor*

Report of the Corn Borer Committee of the American Farm Economic Association

The natural spread and increase of the European Corn Borer which might be anticipated in a normal year did not materialize in 1930. This situation has resulted from decidedly abnormal weather conditions which checked egg laying and normal larval survival. In spite of the temporary check which has operated against the corn borer, there are a large number of corn fields carrying a uniform residual infestation which forecasts a potentially serious increase and spread in 1931 if weather conditions are favorable.

The fact that there has not been a normal increase and spread the past season emphasizes that we may expect seasons of increase and decrease in borer abundance and that a temporary check such as the corn borer received in 1930 does not minimize the potential seriousness of this insect as a destructive agency.

It is still the opinion of the committee that unless the corn borer is controlled it will become the most serious pest ever introduced into America. The situation calls for the continued support and cooperation of the farmer, the scientist, the educator, and all state and Federal Administrative Officials.

In view of this situation your committee wishes to make the following recommendations:

1. That studies be continued or initiated which will aid in determining the most desirable systems of farming under corn borer conditions.

2. Since the corn borer control practices developed and proposed may change the organization and income of the farm, it is important that the relation of these practices to the entire farm business be determined and recommendations made for specific conditions.

3. Proposals including changes in cropping systems, complete utilization of corn,

substitute crops, changes in corn acreages and labor and equipment costs should be worked out in line with the objective of maximum returns from farming.

4. That the foregoing problems may be studied through: (a) The use of detailed accounts both within and without the area of infestation for determining the costs of different farm operations to serve as a basis for recommending changes in practices if they should become necessary. (b) Farm account records and surveys of successful farms in order to determine the most desirable systems of farming. (c) Enterprise studies dealing with specific crops. (d) Specific studies to show labor and power requirements of different operations.

5. That the present close cooperation between the Economic branches of the Federal Departments of Agriculture and the different states and Dominion Provinces in studies relating to the Farm Management aspects of the corn borer infestation both within and without the present infested areas of the corn region.

6. That all our research and extension work in Farm Management, in the regions where the corn borer infestation may become serious, should be tempered with the consideration of the possible effects of corn borer damages in connection with the organization and management and returns from the farm business.

Committee

C. R. ARNOLD
C. L. HOLMES
J. COKE
LYNN ROBERTSON
R. R. HUDELSON
E. B. HILL, *Chairman*

THE AMERICAN FARM ECONOMIC ASSOCIATION
CONSTITUTION

ARTICLE I

Name.—The name of the Association shall be The American Farm Economic Association.

ARTICLE II

Object.—The object of this Association shall be to promote the investigation and teaching of farm management and other economic questions pertaining to agriculture.

ARTICLE III

Membership.—The membership shall consist of persons interested in Farm Management and Farm Economics.

Associations of ten or more members in a state or region may be recognized by the Executive Committee as local chapters of the American Farm Economic Association. Such locals may admit as members only persons who are members of the American Farm Economic Association but they may admit associate members on such conditions as they desire.

ARTICLE IV

Organization.—The officers shall be a President, Vice-President, and a Secretary-Treasurer, who shall be elected for one year, and who shall serve until their successors shall qualify.

The Executive Committee shall consist of the active officers, and the latest four past presidents, and shall have the power of appointing committees, selecting time and places of meeting, and of bringing to the attention of the members any matter which in their judgment should be considered by the Association.

There shall be three standing committees appointed annually by the Executive Committee. One of these committees shall consider the lines of investigation best adapted to the needs of the work of farm economics at the present time and shall suggest to various investigators plans of correlation and cooperation in the work. It shall be the duty of this committee to collect, as far as possible from investigators, the lines of work to be carried out each year. The second committee shall investigate the methods of lecture and laboratory work in farm economics and make suggestions to members of the Association and to Colleges intending to organize courses in farm economics. It shall be the duty of the third committee to report on extension work in farm economics.

ARTICLE V

Section 1. Dues and Subscriptions.—The rate for members of the Association shall be five dollars per year, payable in advance. This amount is divided as follows: Annual dues fifty cents, and annual subscription to the JOURNAL OF FARM ECONOMICS, four dollars and fifty cents.

Section 2. Life membership in the Association may be secured by the payment of seventy-five dollars ($75). Funds thus obtained shall be invested and only the income spent.

ARTICLE VI

Meetings.—There shall be held an annual meeting of the Association, the arrangements and program to be made by the Executive Committee. Notice of such meeting shall be mailed to each member at least four weeks in advance.

ARTICLE VII

Amendments.—This constitution may be amended by a two-thirds vote of the members present at any meeting of the Association.